

FCC Test Report

Product Name	Portable Printer
Model No.	CV80
FCC	QISCV80

Applicant	Huawei Technologies Co., Ltd.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, China

Date of Receipt	Sep. 11, 2018
Issued Date	Oct. 15, 2018
Report No.	1890137R-RFUSP01V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Test Report

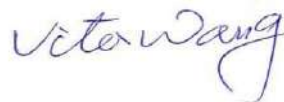
Issued Date: Oct. 15, 2018

Report No.: 1890137R-RFUSP01V00



Product Name	Portable Printer
Applicant	Huawei Technologies Co., Ltd.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, China
Manufacturer	Huawei Technologies Co., Ltd.
Model No.	CV80
FCC.	QISCV80
EUT Rated Voltage	DC 7.4V by Battery
EUT Test Voltage	AC 120V / 60Hz ;DC 7.4V by Battery
Trade Name	HUAWEI / honor
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2017 ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Adm. Assistant / Vita Wang)

Tested By :



(Engineer / Sam Hsu)

Approved By :



(Director / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	5
1.1. EUT Description	5
1.2. Operational Description.....	7
1.3. Tested System Details.....	8
1.4. Configuration of Tested System	8
1.5. EUT Exercise Software	8
1.6. Test Facility.....	9
1.7. List of Test Equipment.....	10
2. CONDUCTED EMISSION.....	11
2.1. Test Setup.....	11
2.2. Limits.....	12
2.3. Test Procedure.....	12
2.4. Uncertainty.....	12
2.5. Test Result of Conducted Emission.....	13
3. PEAK POWER OUTPUT.....	15
3.1. Test Setup.....	15
3.2. Limit	15
3.3. Test Procedure.....	15
3.4. Uncertainty.....	15
3.5. Test Result of Peak Power Output.....	16
4. RADIATED EMISSION	19
4.1. Test Setup.....	19
4.2. Limits.....	20
4.3. Test Procedure.....	21
4.4. Uncertainty.....	21
4.5. Test Result of Radiated Emission.....	22
5. RF ANTENNA CONDUCTED TEST.....	34
5.1. Test Setup.....	34
5.2. Limits.....	34
5.3. Test Procedure.....	34
5.4. Uncertainty.....	34
5.5. Test Result of RF Antenna Conducted Test	35
6. BAND EDGE.....	38
6.1. Test Setup.....	38
6.2. Limit	38
6.3. Test Procedure.....	39

6.4.	Uncertainty.....	39
6.5.	Test Result of Band Edge.....	40
7.	CHANNEL NUMBER.....	58
7.1.	Test Setup.....	58
7.2.	Limit	58
7.3.	Test Procedure.....	58
7.4.	Uncertainty.....	58
7.5.	Test Result of Channel Number	59
8.	CHANNEL SEPARATION	62
8.1.	Test Setup.....	62
8.2.	Limit	62
8.3.	Test Procedure.....	62
8.4.	Uncertainty.....	62
8.5.	Test Result of Channel Separation	63
9.	DWELL TIME.....	69
9.1.	Test Setup.....	69
9.2.	Limit	69
9.3.	Test Procedure.....	69
9.4.	Uncertainty.....	69
9.5.	Test Result of Dwell Time	70
10.	OCCUPIED BANDWIDTH.....	76
10.1.	Test Setup.....	76
10.2.	Limits.....	76
10.3.	Test Procedure.....	76
10.4.	Uncertainty.....	76
10.5.	Test Result of Occupied Bandwidth	77
11.	EMI REDUCTION METHOD DURING COMPLIANCE TESTING.....	83

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Portable Printer
Trade Name	HUAWEI / honor
Model No.	CV80
FCC.	QISCV80
Frequency Range	2402-2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	Chip Antenna
Channel Control	Auto
Antenna Gain	Refer to the table "Antenna List"
USB Cable	Non-Shielded, 0.32m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	HUAWEI / honor	N/A	Chip	0.1dBi for 2.4 GHz

Note: The antenna of EUT conforms to FCC 15.203.

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Channel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Channel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Channel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Channel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Channel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Channel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Channel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Channel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Channel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Channel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Channel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Channel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Channel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Channel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Channel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Channel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Channel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Channel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Channel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

Note:

1. The EUT is a Portable Printer with a built-in Bluetooth V4.0, V3.0, V2.1+EDR transceiver, this report for Bluetooth V4.0, V3.0, V2.1+EDR.
2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

Test Mode	Mode 1: Transmit - 1Mbps (GFSK) Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) Mode 2: Transmit - 3Mbps (8DPSK)
-----------	---

1.2. Operational Description

The EUT is a Portable Printer with a built-in Bluetooth V4.0, V3.0, V2.1+EDR transceiver. The number of the channels is 79 in 2402-2480MHz. This device provides three kinds of transmitting speed and modulation, respectively GFSK(1Mbps) / π / 4DQPSK(2Mbps) / 8DPSK(3Mbps). The antenna is Chip antenna and provides diversity function to improve the receiving function.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted.

The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

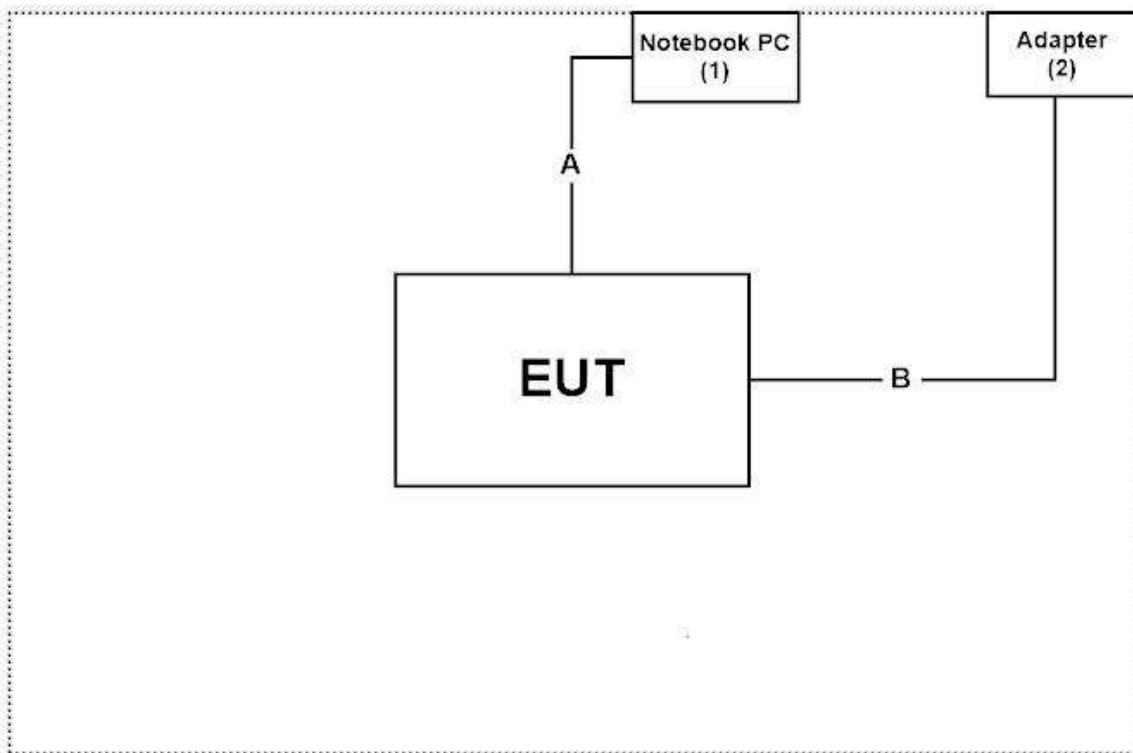
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook PC	DELL	Latitude 5580	2HRD7H2	N/A
2 Adapter	HUAWEI	HW-050100C01	P77911J6K51311	N/A

Signal Cable Type	Signal cable Description
A Signal Cable	Non-Shielded, 0.9m
B USB Cable	Non-Shielded, 0.32m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software "Blue Tool v1.8.7.2" on the Notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press "OK" to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	30-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd
Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2018/02/12	2019/02/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2018/10/13	2019/10/12
X	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/08/01	2019/07/31
X	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/07/25	2019/07/24
X	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/07/25	2019/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2017/11/07	2018/11/06
X	LISN	R&S	ESH3-Z5	836679/017	2018/02/09	2019/02/08
X	LISN	R&S	ENV216	100097	2018/02/09	2019/02/08
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2018/06/21	2019/06/20

For Radiated measurements /Site3/CB8

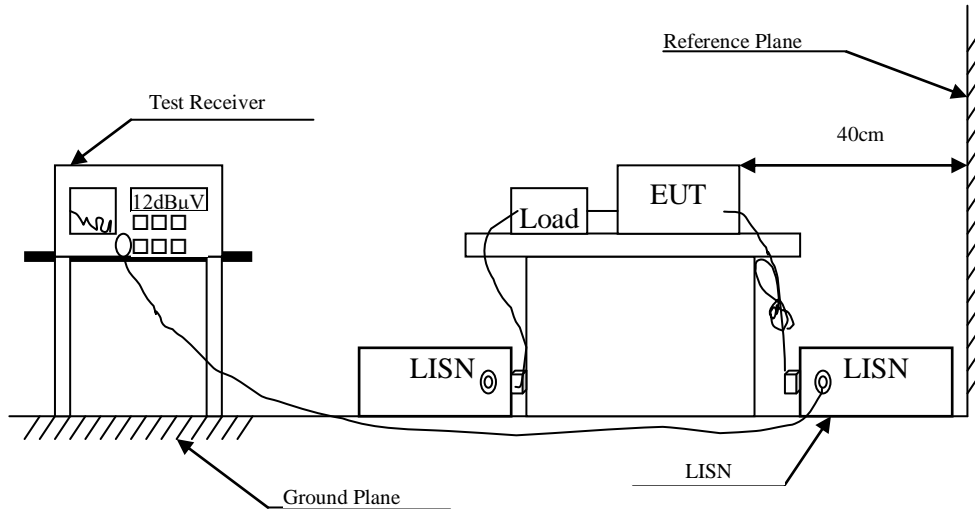
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2018/03/12	2019/03/11
	Loop Antenna	Teseq	HLA6121	37133	2018/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2018/06/24	2019/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2018/06/14	2019/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330 010	2018/06/14	2019/06/13
X	Horn Antenna	ETS-Lindgren	3117	00135205	2018/05/03	2019/05/02
X	Horn Antenna	SCHWARZBECK	9120D	576	2017/11/30	2018/11/29
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2018/04/10	2019/04/09
	Horn Antenna	Com-Power	AH-840	101043	2018/01/09	2019/01/08
	Amplifier + Cable	EMCI	EMC184045SE	980370	2018/03/21	2019/03/20
X	Filter	MICRO-TRONICS	BRM50702	G270	2018/08/06	2019/08/05
	Filter	MICRO-TRONICS	BRM50716	G196	2018/08/06	2019/08/05

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version :Quietek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and Peripherals are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : Portable Printer
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 1					
Quasi-Peak					
0.197	9.738	15.120	24.858	-39.799	64.657
0.912	9.777	22.400	32.177	-23.823	56.000
1.568	9.804	18.980	28.784	-27.216	56.000
3.330	9.865	18.820	28.685	-27.315	56.000
10.802	10.086	34.400	44.486	-15.514	60.000
21.869	10.249	15.640	25.889	-34.111	60.000
Average					
0.197	9.738	1.410	11.148	-43.509	54.657
0.912	9.777	6.390	16.167	-29.833	46.000
1.568	9.804	5.010	14.814	-31.186	46.000
3.330	9.865	6.640	16.505	-29.495	46.000
10.802	10.086	17.680	27.766	-22.234	50.000
21.869	10.249	-0.760	9.489	-40.511	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Portable Printer
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

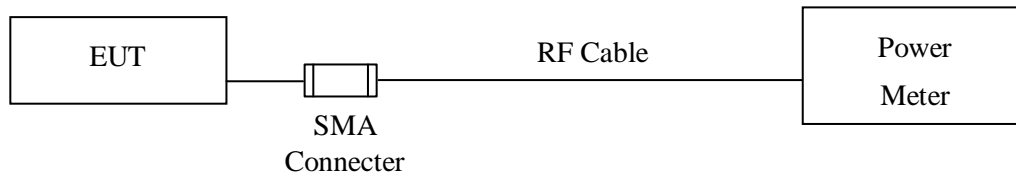
Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 2					
Quasi-Peak					
0.220	9.739	12.980	22.719	-41.281	64.000
0.525	9.741	17.620	27.361	-28.639	56.000
0.666	9.747	16.180	25.927	-30.073	56.000
2.013	9.822	7.640	17.462	-38.538	56.000
11.064	10.127	29.620	39.747	-20.253	60.000
20.224	10.384	15.120	25.504	-34.496	60.000
Average					
0.220	9.739	0.830	10.569	-43.431	54.000
0.525	9.741	10.290	20.031	-25.969	46.000
0.666	9.747	6.980	16.727	-29.273	46.000
2.013	9.822	1.450	11.272	-34.728	46.000
11.064	10.127	13.000	23.127	-26.873	50.000
20.224	10.384	2.770	13.154	-36.846	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup



3.2. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

3.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

3.4. Uncertainty

± 1.19 dB

3.5. Test Result of Peak Power Output

Product : Portable Printer
Test Item : Peak Power Output
Test Site : No.3 OATS
Test date : 2018/09/28
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	6.85	0.125 Watt= 20.97 dBm	Pass
Channel 39	2441.00	7.05	0.125 Watt= 20.97 dBm	Pass
Channel 78	2480.00	6.59	0.125 Watt= 20.97 dBm	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 0.125W.

Product : Portable Printer
Test Item : Peak Power Output
Test Site : No.3 OATS
Test date : 2018/10/13
Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	6.07	0.125 Watt= 20.97 dBm	Pass
Channel 39	2441.00	6.15	0.125 Watt= 20.97 dBm	Pass
Channel 78	2480.00	5.27	0.125 Watt= 20.97 dBm	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 0.125W

Product : Portable Printer
Test Item : Peak Power Output
Test Site : No.3 OATS
Test date : 2018/09/28
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

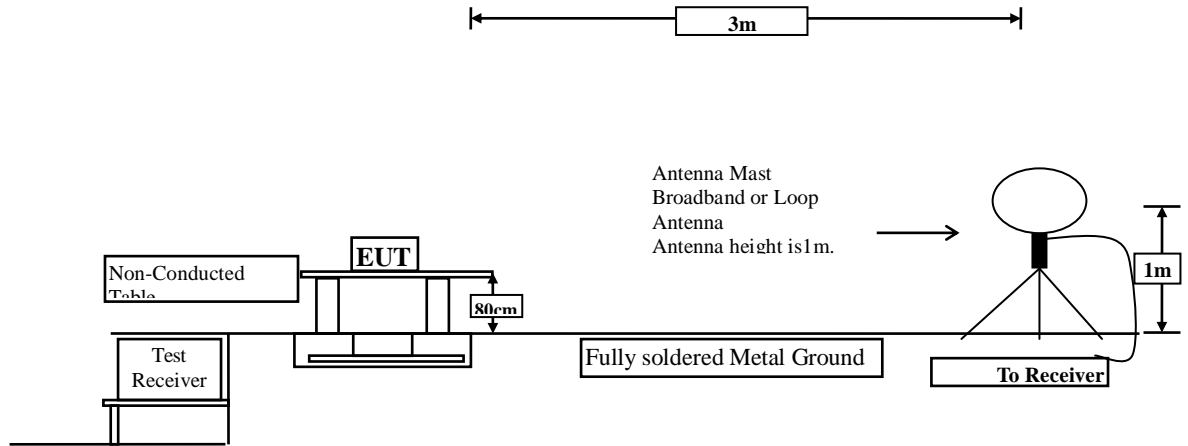
Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	6.58	0.125 Watt= 20.97 dBm	Pass
Channel 39	2441.00	6.43	0.125 Watt= 20.97 dBm	Pass
Channel 78	2480.00	5.82	0.125 Watt= 20.97 dBm	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 0.125W

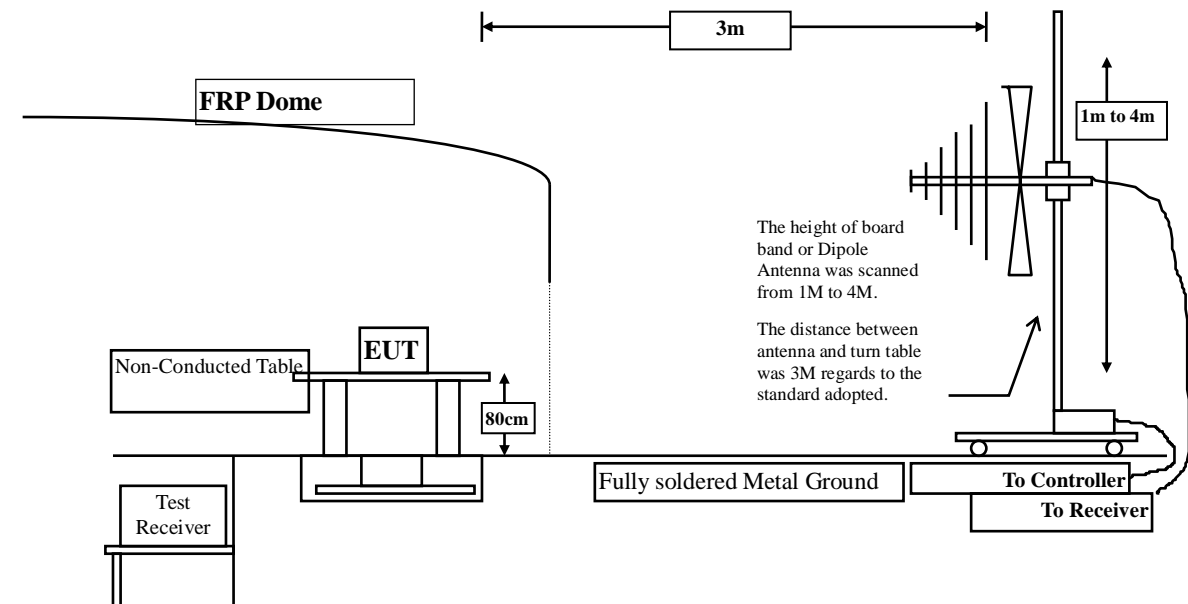
4. Radiated Emission

4.1. Test Setup

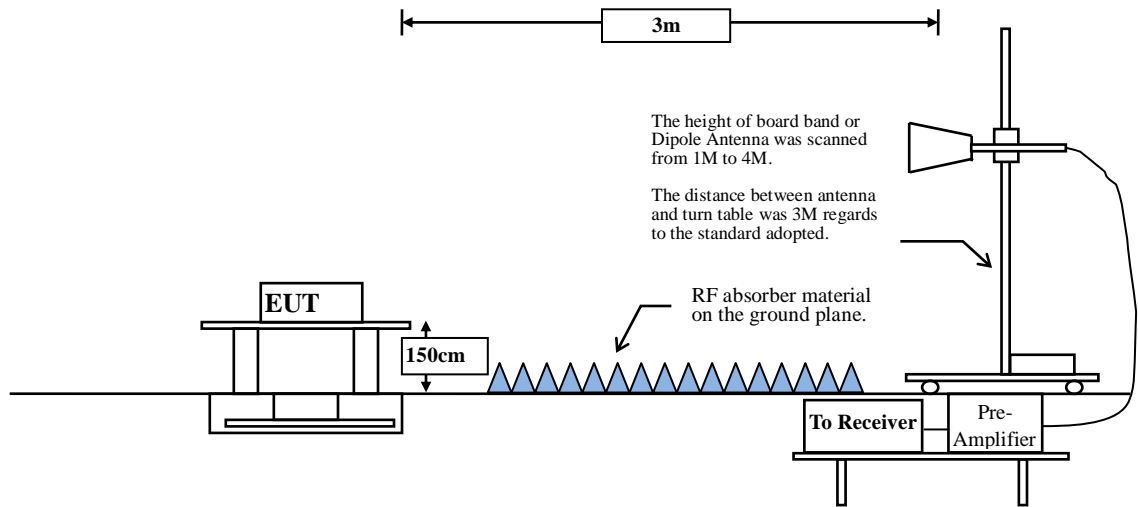
Under 30MHz



Below 1GHz



Above 1GHz



4.2. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

- Remarks:
1. RF Voltage (dB μ V) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4804.000	2.511	42.030	44.540	-29.460	74.000
7206.000	9.511	42.060	51.571	-22.429	74.000
9608.000	10.394	40.290	50.684	-23.316	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4804.000	2.923	42.040	44.962	-29.038	74.000
7206.000	9.988	41.930	51.919	-22.081	74.000
9608.000	10.847	40.300	51.147	-22.853	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
------------------	-------------------------	--------------------------------	--------------------------------------	--------------	-----------------------

Horizontal

Peak Detector:

4882.000	2.025	42.460	44.485	-29.515	74.000
7323.000	9.762	40.670	50.431	-23.569	74.000
9764.000	9.682	39.940	49.621	-24.379	74.000

Average

Detector:

--

Vertical

Peak Detector:

4882.000	2.488	42.370	44.858	-29.142	74.000
7323.000	10.375	40.930	51.304	-22.696	74.000
9764.000	10.315	39.720	50.035	-23.965	74.000

Average

Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2480MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
------------------	-------------------------	--------------------------------	--------------------------------------	--------------	-----------------------

Horizontal

Peak Detector:

4960.000	2.582	41.220	43.802	-30.198	74.000
7440.000	10.555	38.820	49.375	-24.625	74.000
9920.000	10.206	41.520	51.726	-22.274	74.000

Average

Detector:

--

Vertical

Peak Detector:

4960.000	3.398	42.110	45.509	-28.491	74.000
7440.000	11.214	39.260	50.474	-23.526	74.000
9920.000	11.245	41.670	52.915	-21.085	74.000

Average

Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4804.000	2.511	39.287	41.798	-32.202	74.000
7206.000	9.511	37.682	47.193	-26.807	74.000
9608.000	10.394	36.653	47.047	-26.953	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4804.000	2.923	39.710	42.632	-31.368	74.000
7206.000	9.988	37.675	47.664	-26.336	74.000
9608.000	10.847	37.360	48.207	-25.793	74.000
Average Detector:					
--					

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4882.000	2.025	39.345	41.370	-32.630	74.000
7323.000	9.762	36.964	46.725	-27.275	74.000
9764.000	9.682	37.511	47.192	-26.808	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4882.000	2.488	39.239	41.727	-32.273	74.000
7323.000	10.375	36.457	46.831	-27.169	74.000
9764.000	10.315	37.399	47.714	-26.286	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2480MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4960.000	2.582	38.403	40.985	-33.015	74.000
7440.000	10.555	36.269	46.824	-27.176	74.000
9920.000	10.206	37.734	47.940	-26.060	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4960.000	2.582	39.620	42.202	-31.798	74.000
7440.000	10.555	36.164	46.719	-27.281	74.000
9920.000	11.245	37.501	48.746	-25.254	74.000
Average Detector:					
--					

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)(2402MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4804.000	2.511	41.540	44.050	-29.950	74.000
7206.000	9.511	41.570	51.081	-22.919	74.000
9608.000	10.394	40.010	50.404	-23.596	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4804.000	2.923	42.090	45.012	-28.988	74.000
7206.000	9.988	41.450	51.439	-22.561	74.000
9608.000	10.847	40.220	51.067	-22.933	74.000
Average Detector:					
--					

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4882.000	2.025	41.650	43.675	-30.325	74.000
7323.000	9.762	40.540	50.301	-23.699	74.000
9764.000	9.682	39.560	49.241	-24.759	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4882.000	2.488	42.540	45.028	-28.972	74.000
7323.000	10.375	40.820	51.194	-22.806	74.000
9764.000	10.315	39.260	49.575	-24.425	74.000
Average Detector:					
--					

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
------------------	-------------------------	--------------------------------	--------------------------------------	--------------	-----------------------

Horizontal

Peak Detector:

4960.000	2.582	41.220	43.802	-30.198	74.000
7440.000	10.555	39.520	50.075	-23.925	74.000
9920.000	10.206	41.690	51.896	-22.104	74.000

Average

Detector:

--

Vertical

Peak Detector:

4960.000	3.398	42.160	45.559	-28.441	74.000
7440.000	11.214	39.300	50.514	-23.486	74.000
9920.000	11.245	41.300	52.545	-21.455	74.000

Average

Detector:

--

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
105.913	-7.662	43.096	35.434	-8.066	43.500
257.739	-5.430	33.294	27.864	-18.136	46.000
389.884	0.997	34.842	35.839	-10.161	46.000
604.971	4.308	27.187	31.495	-14.505	46.000
790.536	6.364	28.531	34.895	-11.105	46.000
924.087	6.595	28.502	35.097	-10.903	46.000
Vertical					
105.913	-4.505	41.511	37.006	-6.494	43.500
365.986	0.215	26.879	27.095	-18.905	46.000
455.957	-3.662	31.076	27.414	-18.586	46.000
540.304	2.156	26.374	28.530	-17.470	46.000
686.507	2.272	28.147	30.419	-15.581	46.000
810.217	2.975	29.679	32.654	-13.346	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)(2441MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
168.710	-9.771	47.162	37.391	-6.109	43.500
314.210	-4.639	43.204	38.565	-7.435	46.000
435.460	0.873	35.457	36.330	-9.670	46.000
508.210	2.760	36.123	38.883	-7.117	46.000
678.930	2.822	29.363	32.185	-13.815	46.000
822.490	7.179	29.948	37.127	-8.873	46.000
Vertical					
145.430	-5.479	40.235	34.756	-8.744	43.500
168.710	-4.431	41.197	36.766	-6.734	43.500
290.930	-5.418	37.625	32.207	-13.793	46.000
363.680	0.079	36.346	36.425	-9.575	46.000
605.210	2.269	27.545	29.814	-16.186	46.000
810.850	2.878	27.391	30.269	-15.731	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Portable Printer
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/09/21
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

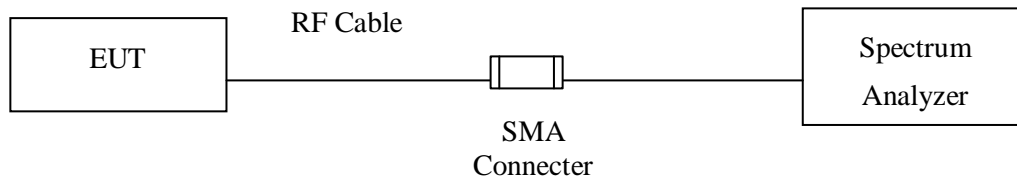
Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
145.275	-7.726	44.964	37.238	-6.262	43.500
252.116	-5.836	34.526	28.690	-17.310	46.000
419.406	-0.249	33.478	33.229	-12.771	46.000
547.333	4.154	29.774	33.928	-12.072	46.000
648.551	1.702	31.619	33.320	-12.680	46.000
845.362	6.489	27.626	34.115	-11.885	46.000
Vertical					
143.870	-5.516	39.654	34.138	-9.362	43.500
340.681	-1.238	36.453	35.215	-10.785	46.000
534.681	1.313	29.150	30.462	-15.538	46.000
689.319	2.301	28.082	30.383	-15.617	46.000
790.536	2.692	28.881	31.573	-14.427	46.000
929.710	3.807	26.694	30.501	-15.499	46.000

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- No emission found between lowest internal used/generated frequency to 30MHz.

5. RF Antenna Conducted Test

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.4. Uncertainty

$\pm 1.20\text{dB}$

5.5. Test Result of RF Antenna Conducted Test

Product : Portable Printer
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 00:

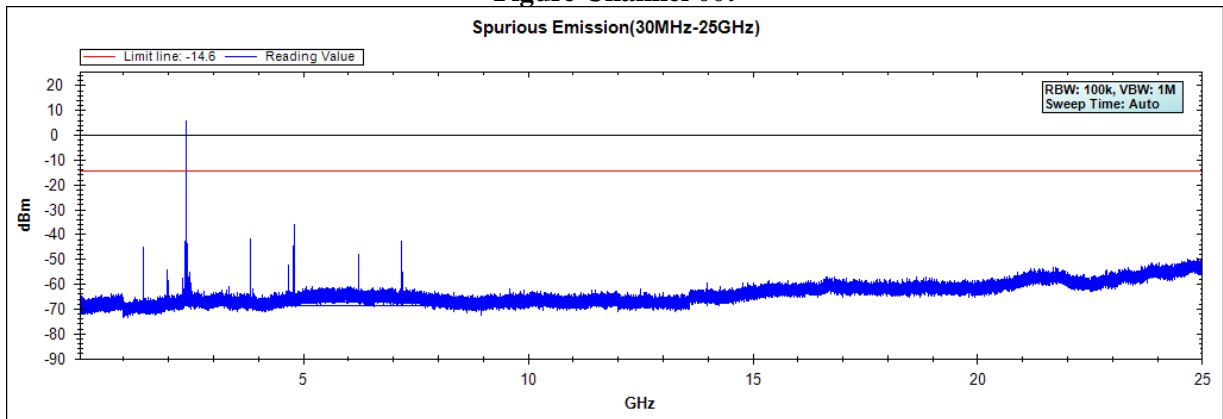


Figure Channel 39:

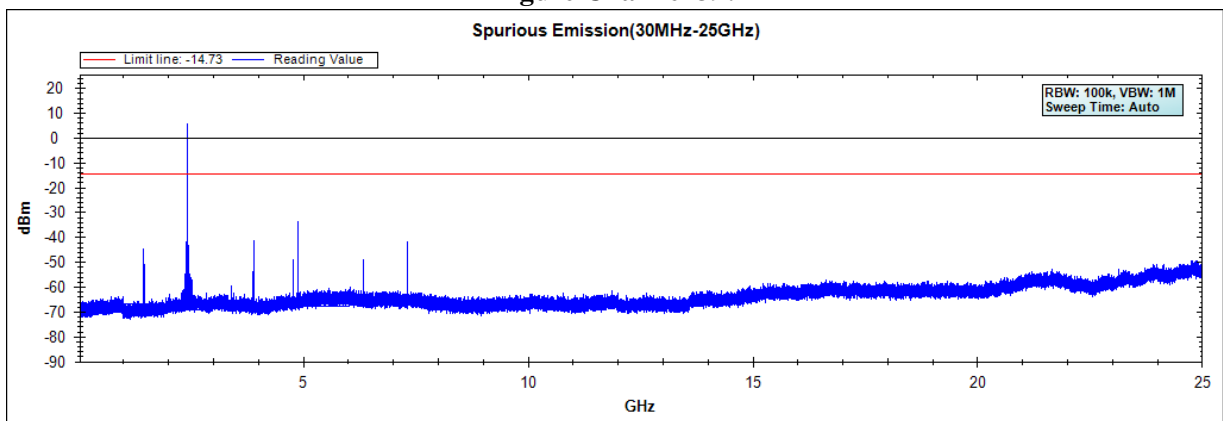
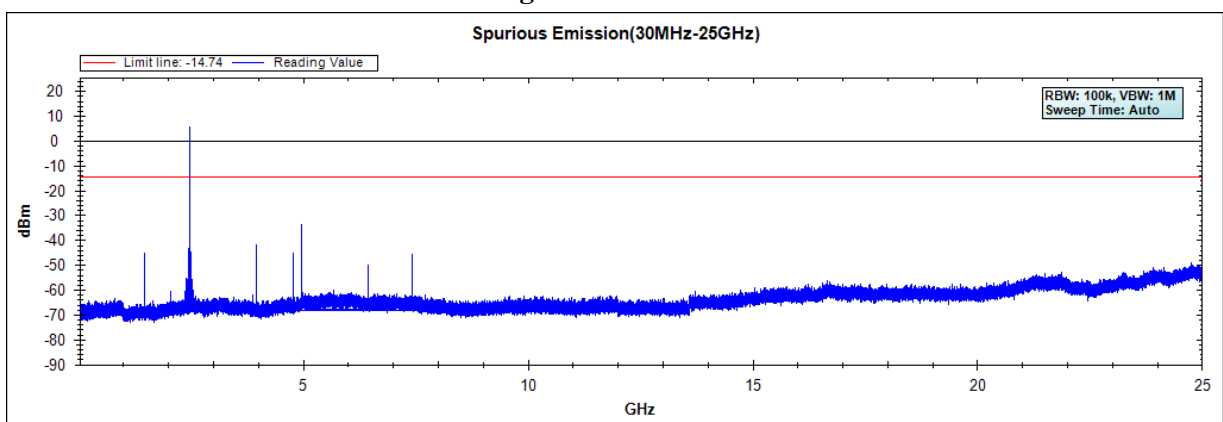


Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Portable Printer
 Test Item : RF Antenna Conducted Test
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)

Figure Channel 00:

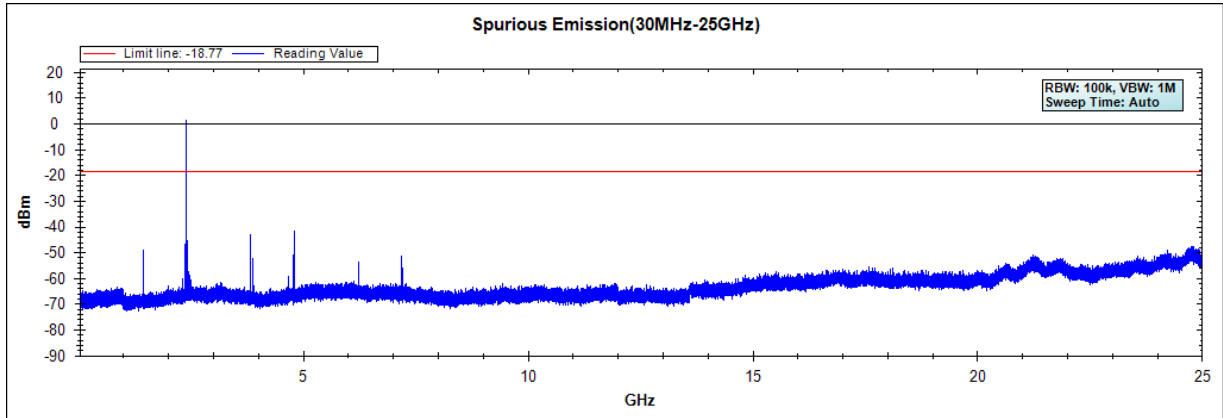


Figure Channel 39:

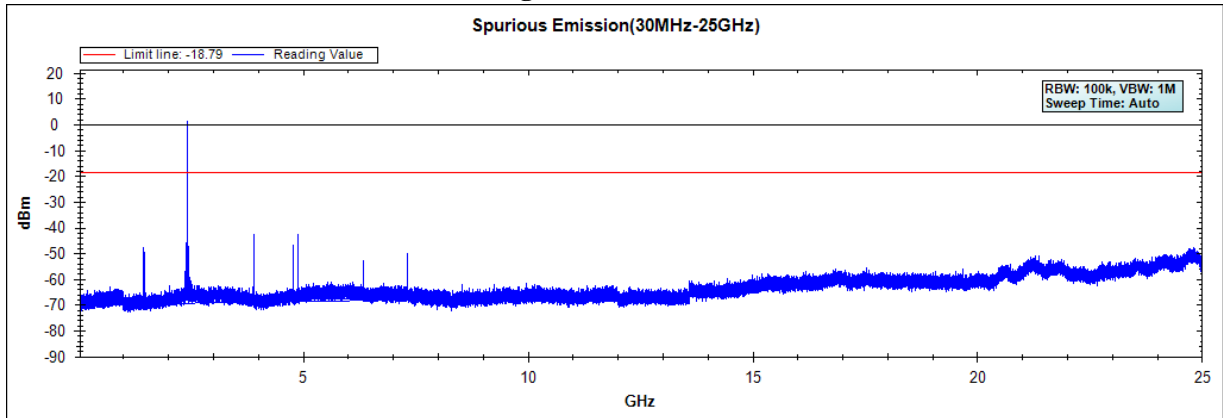
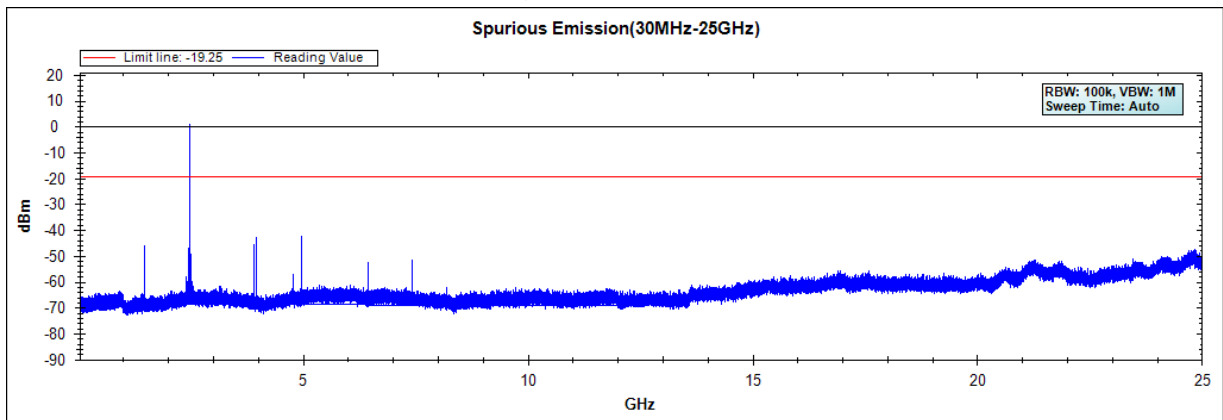


Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Portable Printer
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test date : 2018/09/25
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Figure Channel 00:

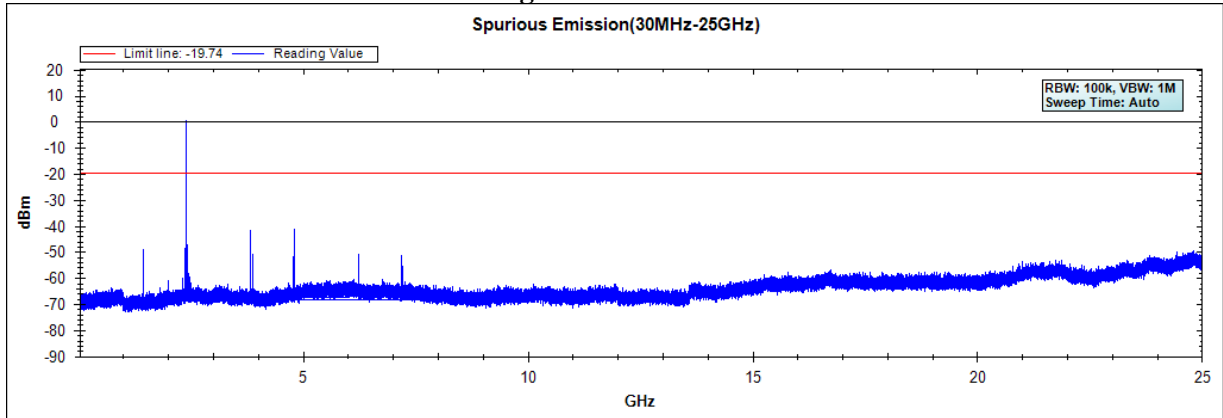


Figure Channel 39:

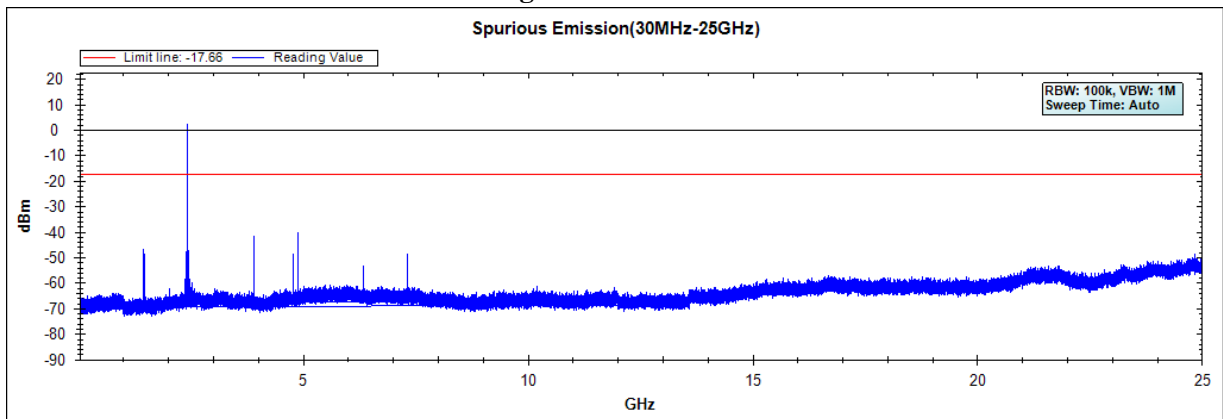
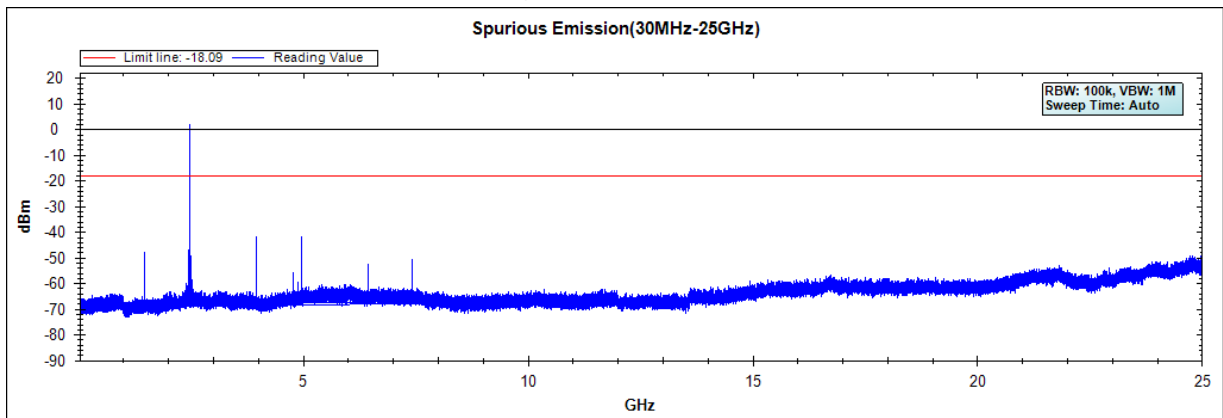


Figure Channel 78:



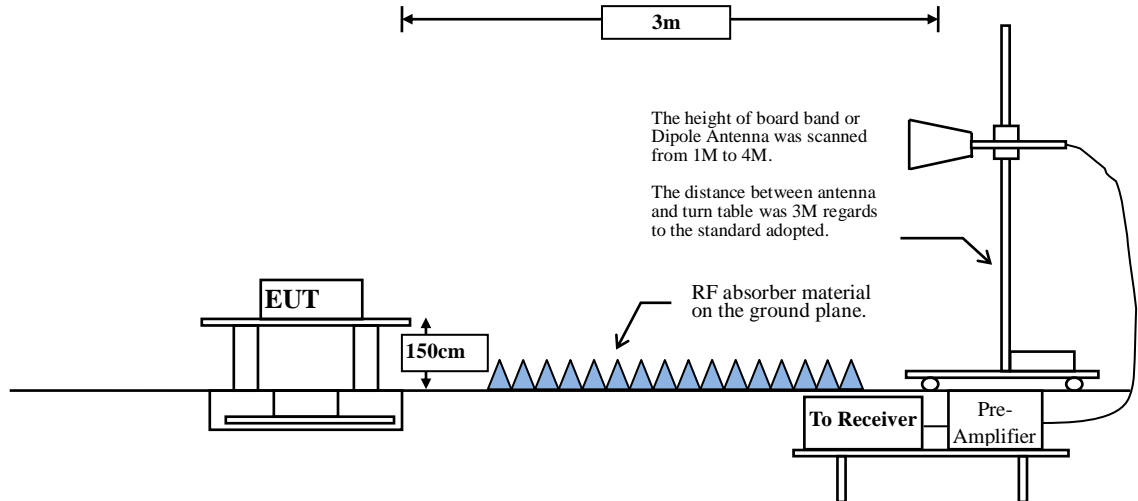
Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

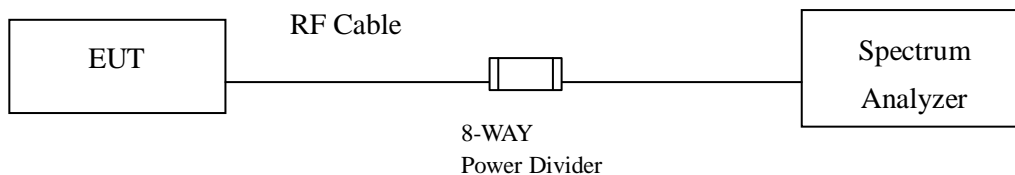
6.1. Test Setup

RF Radiated Measurement:

Above 1GHz



RF Conducted Measurement



6.2. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

6.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

6.5. Test Result of Band Edge

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2378.100	-2.739	58.112	55.372	74.00	54.00	Pass
00 (Peak)	2390.000	-2.687	47.954	45.267	74.00	54.00	Pass
00 (Peak)	2400.000	-2.660	68.747	66.087	--	--	--
00 (Peak)	2401.800	-2.658	102.406	99.748	--	--	--
00 (Average)	2378.100	-2.739	50.437	47.697	74.00	54.00	Pass
00 (Average)	2390.000	-2.687	36.869	34.182	74.00	54.00	Pass
00 (Average)	2400.000	-2.660	49.522	46.862	--	--	--
00 (Average)	2402.000	-2.657	88.572	85.915	--	--	--

Figure Channel 00: Horizontal (Peak)

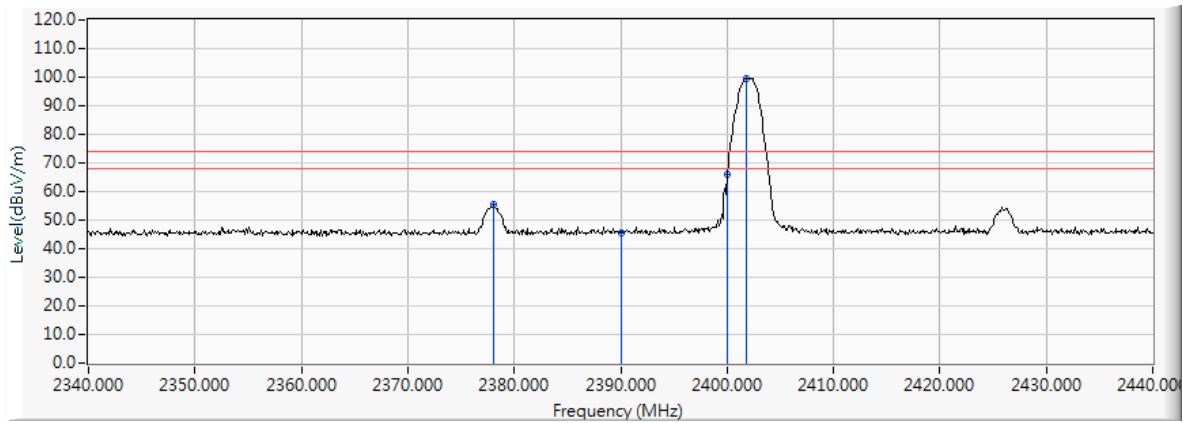
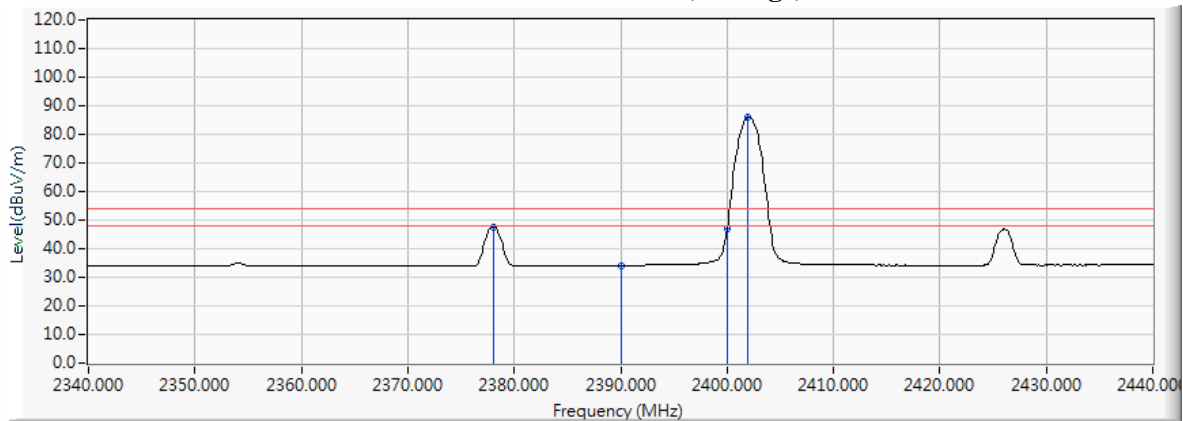


Figure Channel 00: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2377.900	-4.119	52.980	48.861	74.00	54.00	Pass
00 (Peak)	2390.000	-4.159	48.667	44.508	74.00	54.00	Pass
00 (Peak)	2400.000	-4.171	66.761	62.590	--	--	--
00 (Peak)	2402.200	-4.171	98.345	94.174	--	--	--
00 (Average)	2378.000	-4.119	44.579	40.460	74.00	54.00	Pass
00 (Average)	2390.000	-4.159	36.748	32.589	74.00	54.00	Pass
00 (Average)	2400.000	-4.171	46.270	42.099	--	--	--
00 (Average)	2402.000	-4.171	85.315	81.144	--	--	--

Figure Channel 00: VERTICAL (Peak)

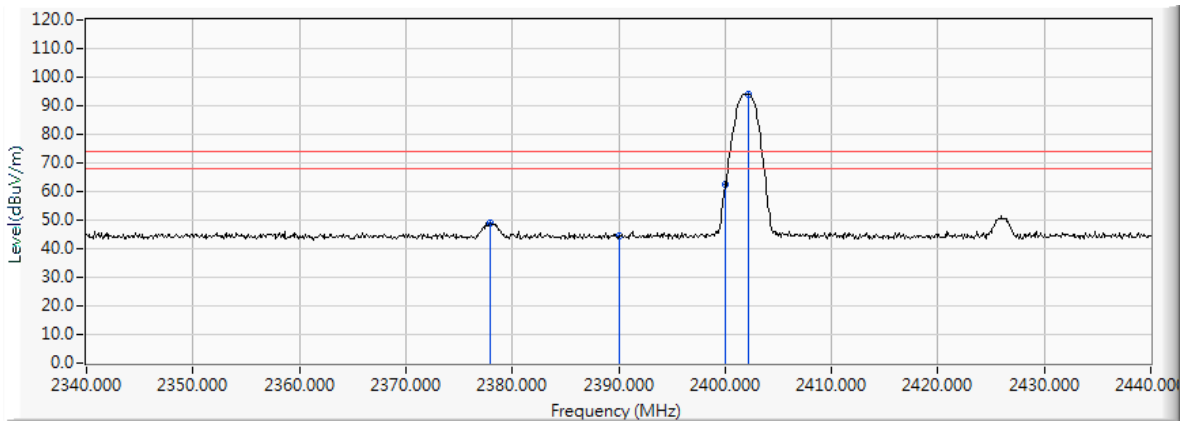
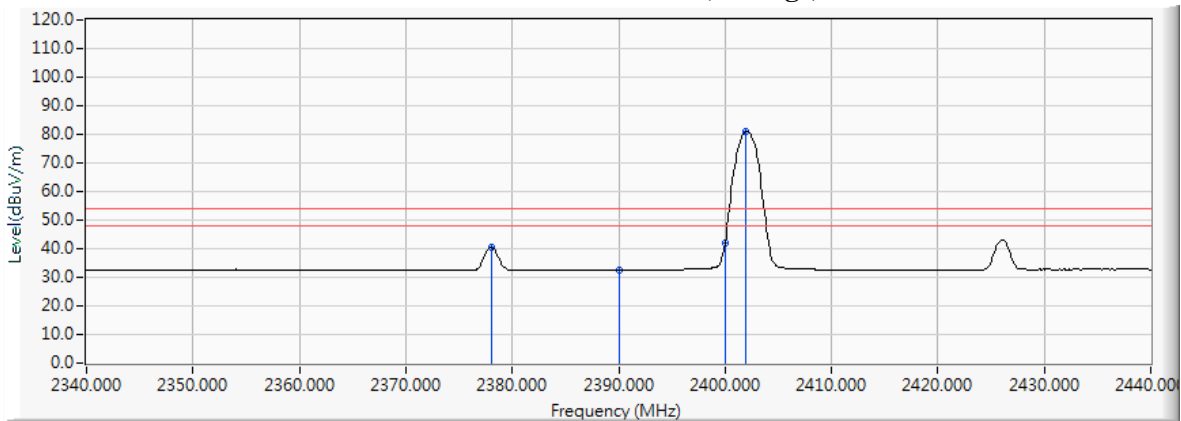


Figure Channel 00: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
78 (Peak)	2480.200	-2.605	100.415	97.810	--	--	Pass
78 (Peak)	2483.500	-2.601	49.234	46.632	74.00	54.00	Pass
78 (Peak)	2503.900	-2.632	54.703	52.071	74.00	54.00	Pass
78 (Average)	2480.100	-2.605	86.984	84.379	--	--	Pass
78 (Average)	2483.500	-2.601	37.676	35.074	74.00	54.00	Pass
78 (Average)	2504.100	-2.633	46.905	44.272	74.00	54.00	Pass

Figure Channel 78: Horizontal (Peak)

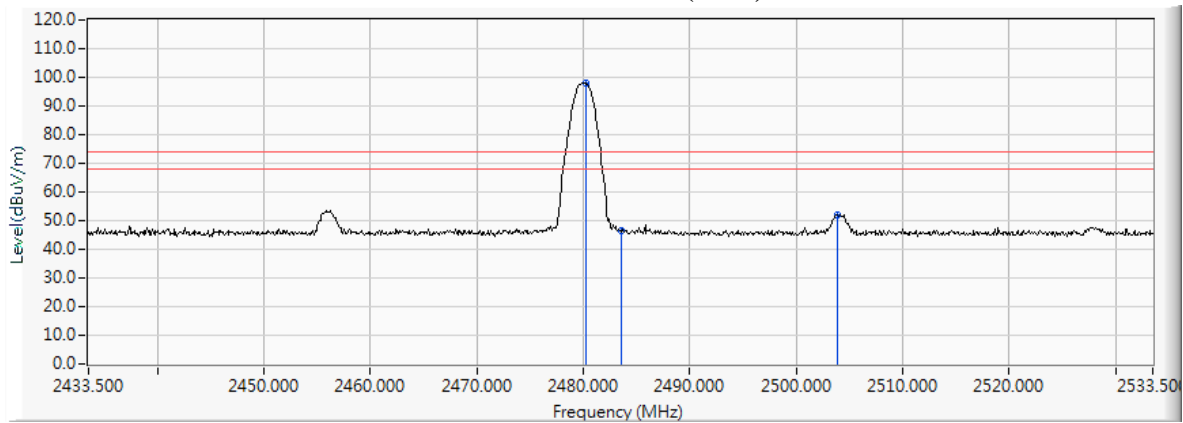
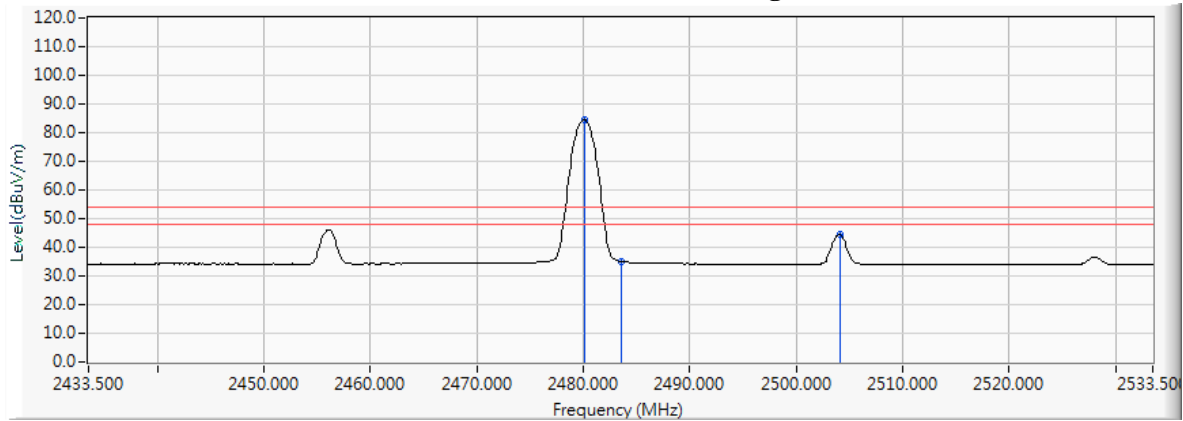


Figure Channel 78: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
78 (Peak)	2479.900	-3.978	97.905	93.927	--	--	Pass
78 (Peak)	2483.500	-3.966	49.224	45.257	74.00	54.00	Pass
78 (Peak)	2504.100	-3.891	53.875	49.985	74.00	54.00	Pass
78 (Average)	2480.000	-3.978	84.996	81.018	--	--	Pass
78 (Average)	2483.500	-3.966	37.429	33.462	74.00	54.00	Pass
78 (Average)	2504.000	-3.891	45.654	41.763	74.00	54.00	Pass

Figure Channel 78: VERTICAL (Peak)

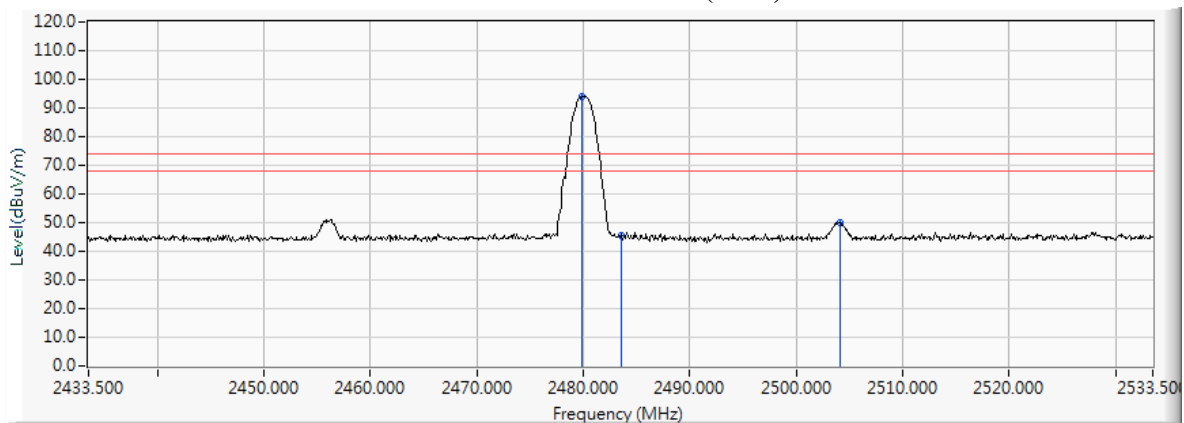
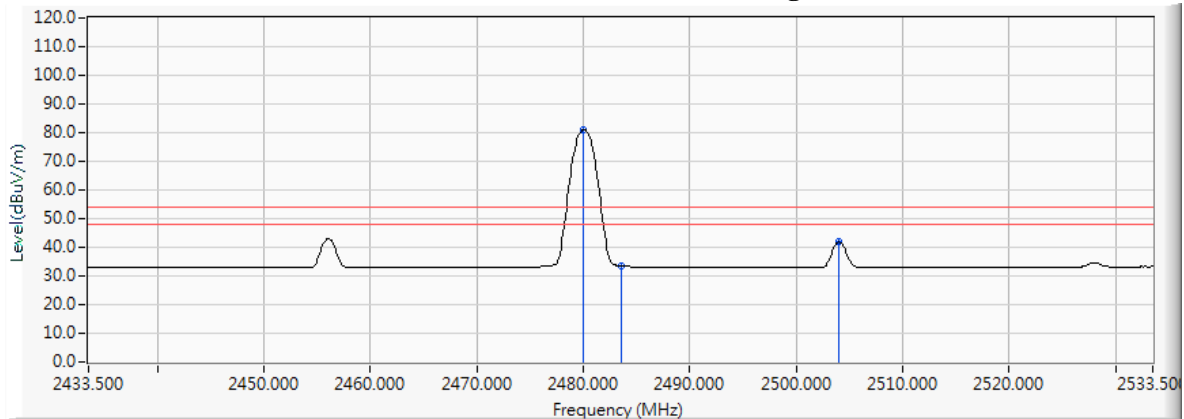


Figure Channel 78: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
00 (Peak)	2377.700	-2.741	56.708	53.967	74.00	54.00	Pass
00 (Peak)	2390.000	-2.687	49.765	47.078	74.00	54.00	Pass
00 (Peak)	2400.000	-2.660	68.685	66.025	--	--	--
00 (Peak)	2401.900	-2.658	101.193	98.535	--	--	--
00 (Average)	2378.000	-2.740	47.757	45.017	74.00	54.00	Pass
00 (Average)	2390.000	-2.687	37.020	34.333	74.00	54.00	Pass
00 (Average)	2400.000	-2.660	53.665	51.005	--	--	--
00 (Average)	2402.000	-2.657	85.232	82.575	--	--	--

Figure Channel 00: Horizontal (Peak)

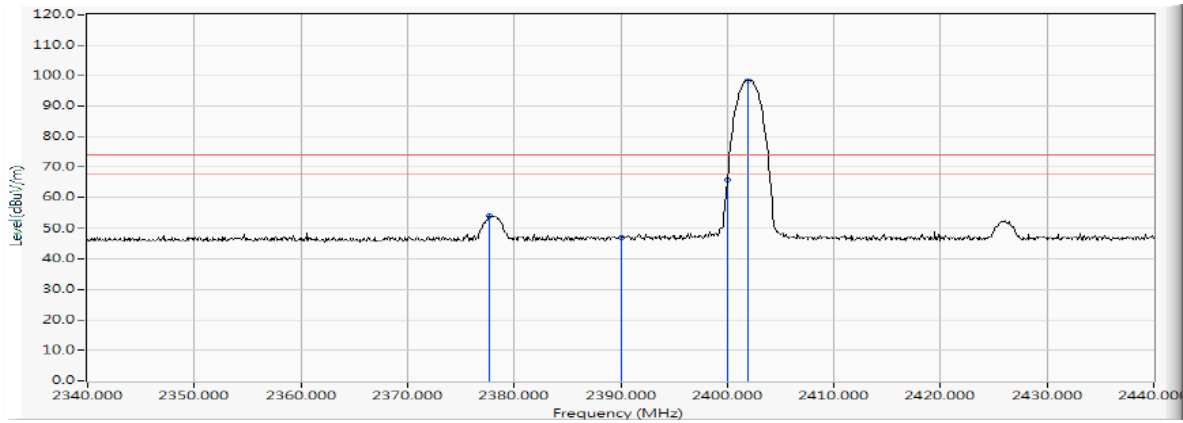
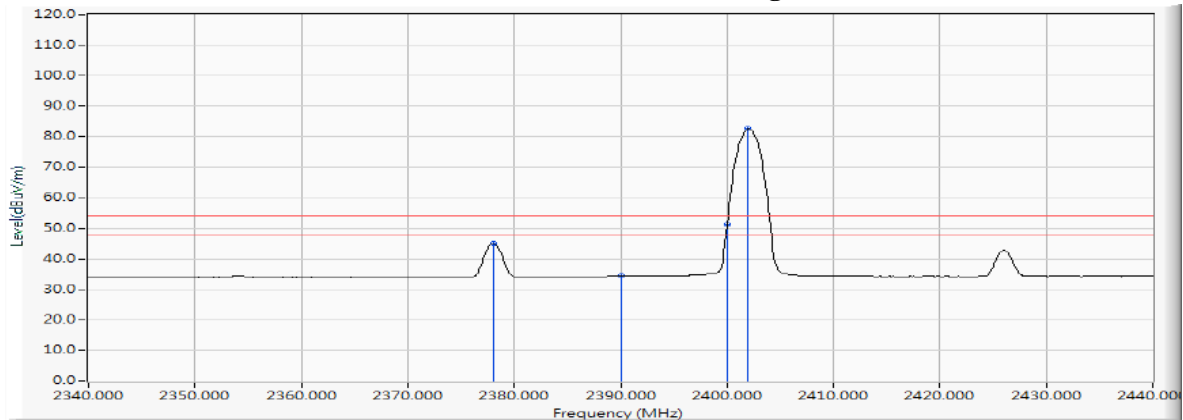


Figure Channel 00: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
00 (Peak)	2378.200	-4.119	54.027	49.907	74.00	54.00	Pass
00 (Peak)	2390.000	-4.159	47.935	43.776	74.00	54.00	Pass
00 (Peak)	2400.000	-4.171	65.435	61.264	--	--	--
00 (Peak)	2402.200	-4.171	98.336	94.165	--	--	--
00 (Average)	2378.000	-4.119	45.027	40.908	74.00	54.00	Pass
00 (Average)	2390.000	-4.159	36.756	32.597	74.00	54.00	Pass
00 (Average)	2400.000	-4.171	51.635	47.464	--	--	--
00 (Average)	2402.000	-4.171	82.927	78.756	--	--	--

Figure Channel 00: VERTICAL (Peak)

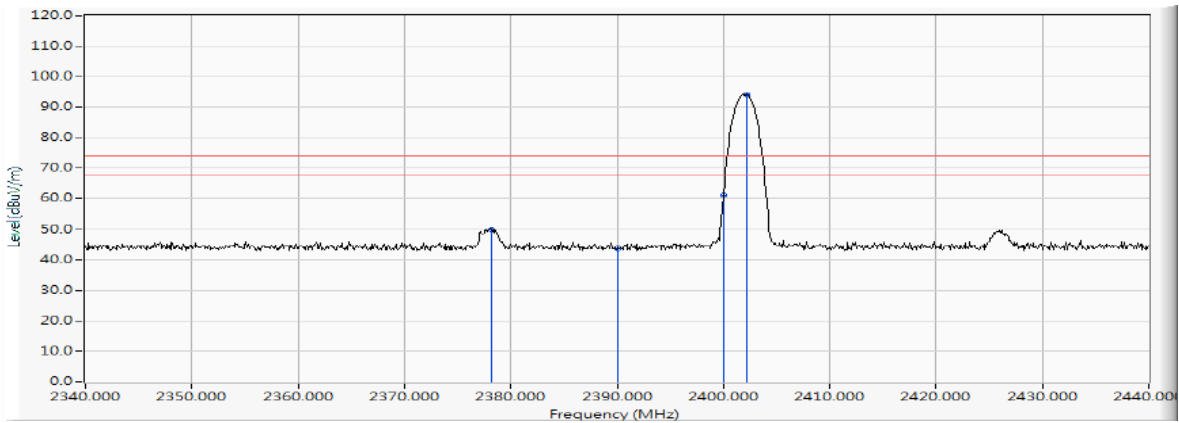
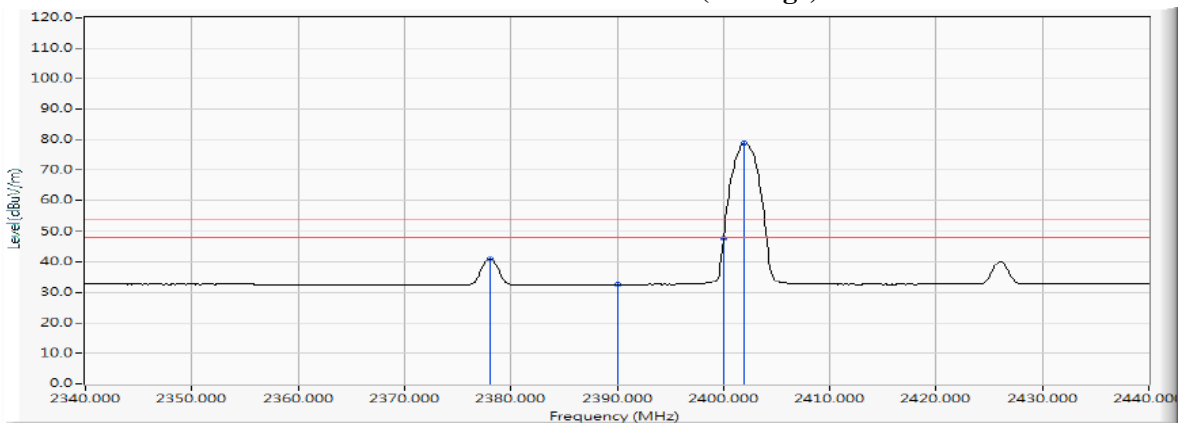


Figure Channel 00: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
78 (Peak)	2480.200	-2.605	95.110	92.505	--	--	Pass
78 (Peak)	2483.500	-2.601	49.253	46.651	74.00	54.00	Pass
78 (Peak)	2504.000	-2.633	51.497	48.865	74.00	54.00	Pass
78 (Average)	2480.000	-2.605	80.417	77.812	--	--	Pass
78 (Average)	2483.500	-2.601	37.068	34.466	74.00	54.00	Pass
78 (Average)	2504.000	-2.633	40.152	37.520	74.00	54.00	Pass

Figure Channel 78: Horizontal (Peak)

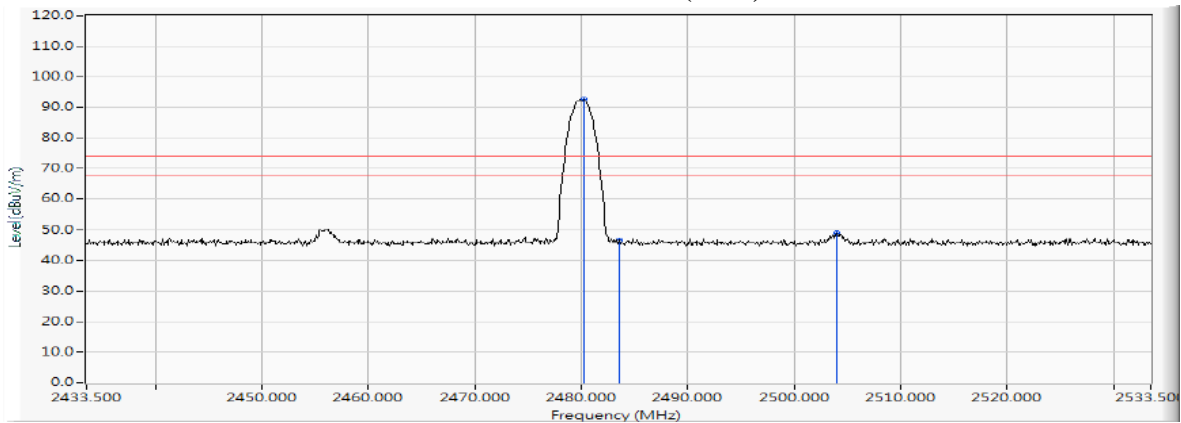
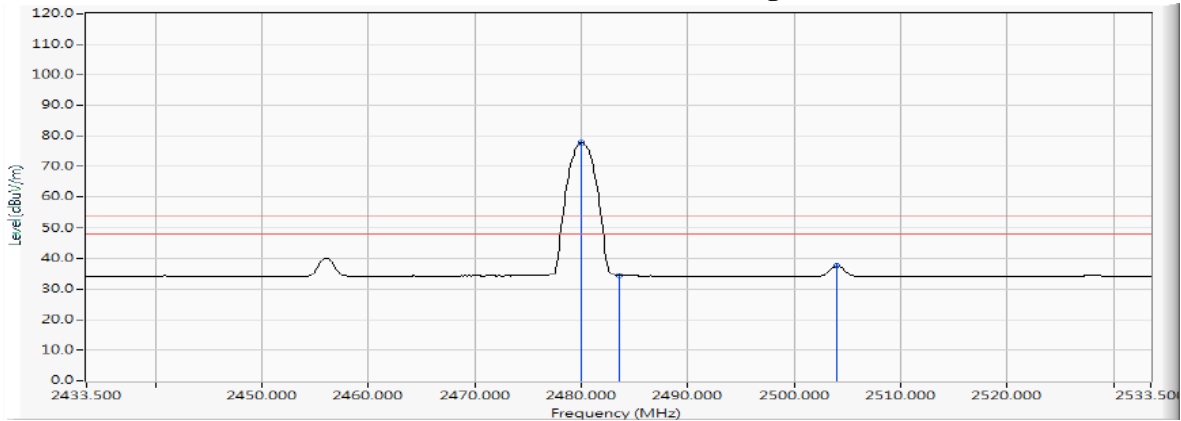


Figure Channel 78: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
78 (Peak)	2479.900	-3.978	90.593	86.615	--	--	Pass
78 (Peak)	2483.500	-3.966	48.801	44.834	74.00	54.00	Pass
78 (Average)	2480.000	-3.978	76.820	72.842	--	--	Pass
78 (Average)	2483.500	-3.966	36.937	32.970	74.00	54.00	Pass
78 (Average)	2504.200	-3.889	38.147	34.257	74.00	54.00	Pass

Figure Channel 78: VERTICAL (Peak)

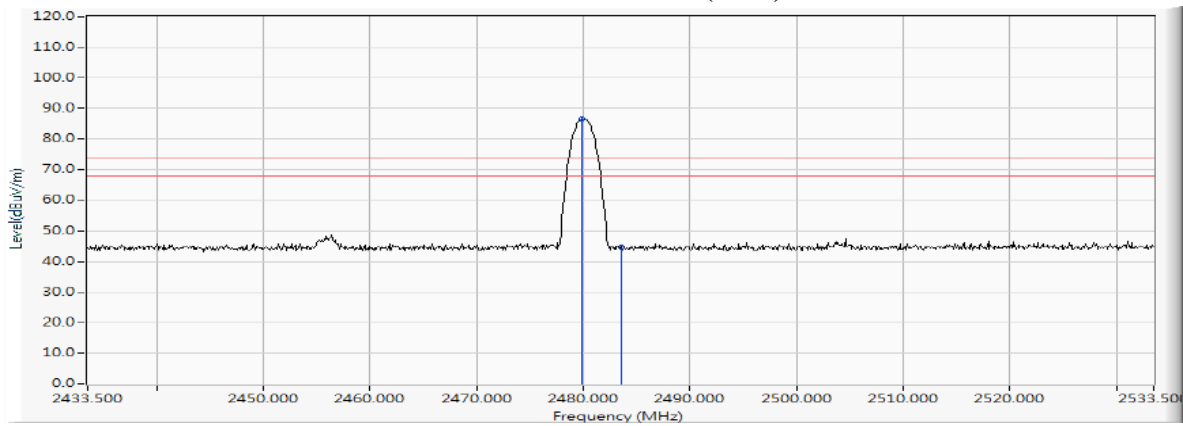
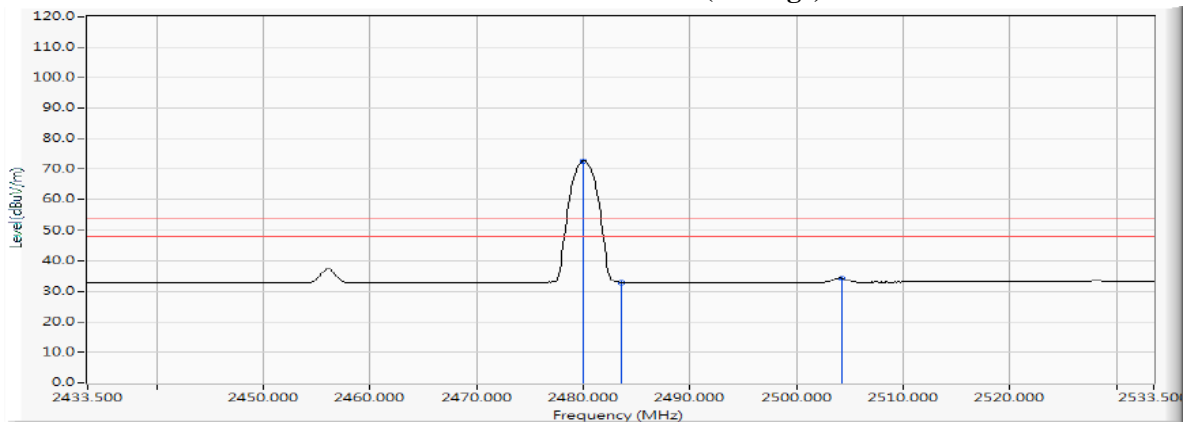


Figure Channel 78: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2378.000	-2.740	57.105	54.365	74.00	54.00	Pass
00 (Peak)	2390.000	-2.687	48.914	46.227	74.00	54.00	Pass
00 (Peak)	2400.000	-2.660	69.078	66.418	--	--	--
00 (Peak)	2402.000	-2.657	101.842	99.185	--	--	--
00 (Average)	2378.100	-2.739	47.771	45.031	74.00	54.00	Pass
00 (Average)	2390.000	-2.687	36.805	34.118	74.00	54.00	Pass
00 (Average)	2400.000	-2.660	53.983	51.323	--	--	--
00 (Average)	2402.100	-2.657	85.526	82.869	--	--	--

Figure Channel 00: Horizontal (Peak)

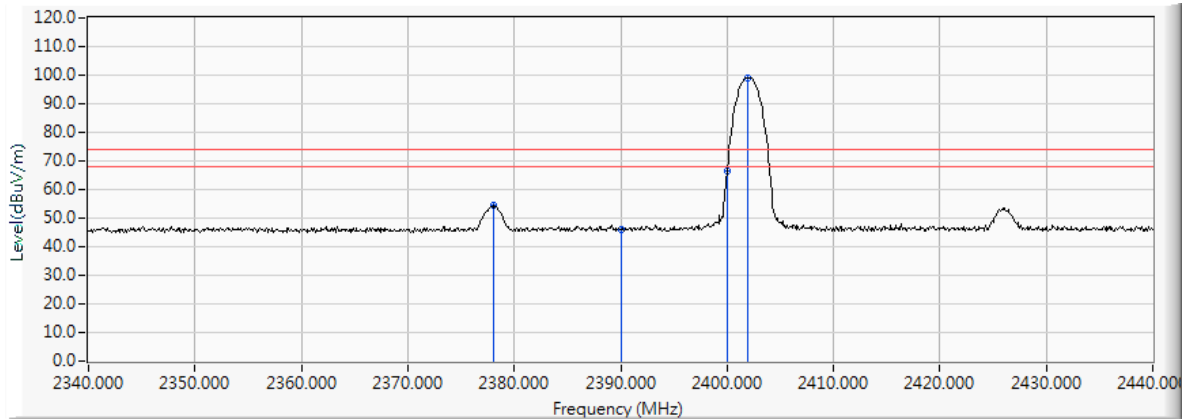
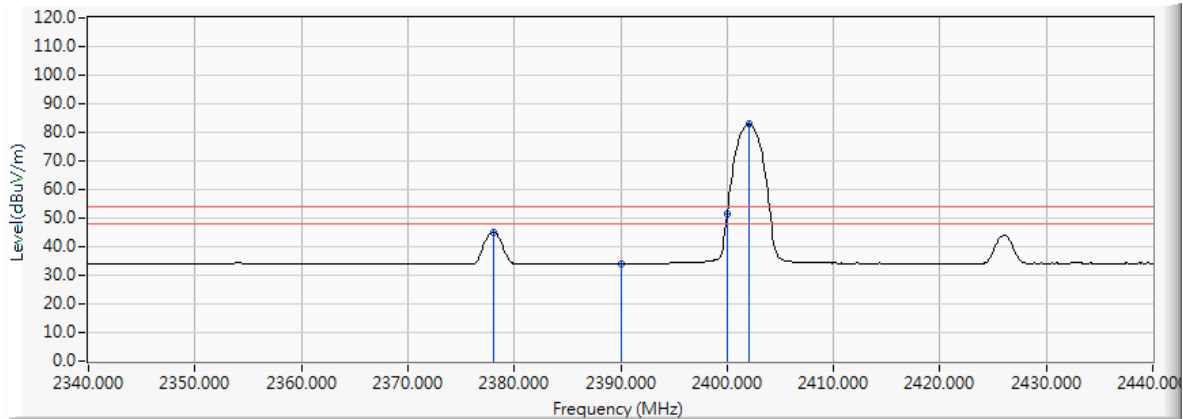


Figure Channel 00: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2378.000	-4.119	51.935	47.816	74.00	54.00	Pass
00 (Peak)	2390.000	-4.159	47.989	43.830	74.00	54.00	Pass
00 (Peak)	2400.000	-4.171	64.548	60.377	--	--	--
00 (Peak)	2402.000	-4.171	97.719	93.548	--	--	--
00 (Average)	2378.200	-4.119	42.072	37.952	74.00	54.00	Pass
00 (Average)	2390.000	-4.159	36.761	32.602	74.00	54.00	Pass
00 (Average)	2400.000	-4.171	51.214	47.043	--	--	--
00 (Average)	2402.100	-4.171	82.275	78.104	--	--	--

Figure Channel 00: VERTICAL (Peak)

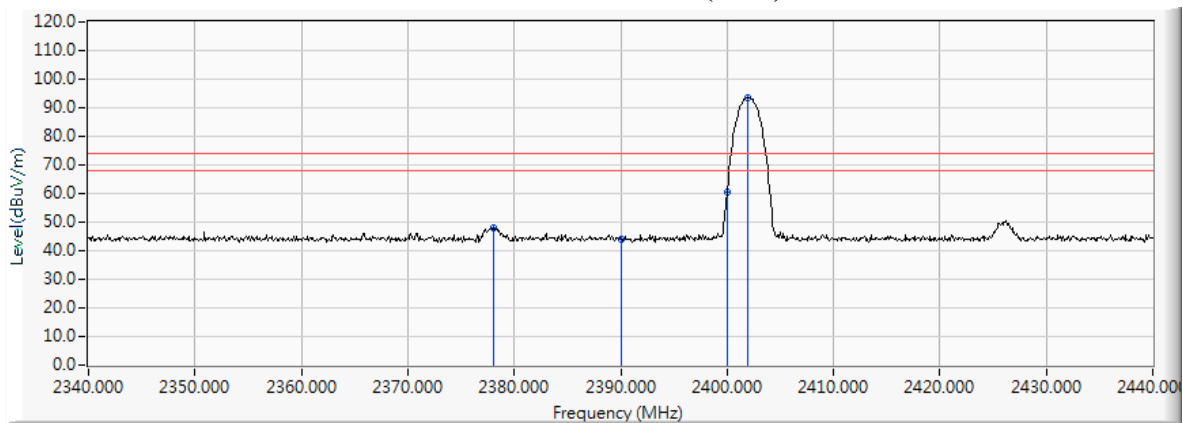
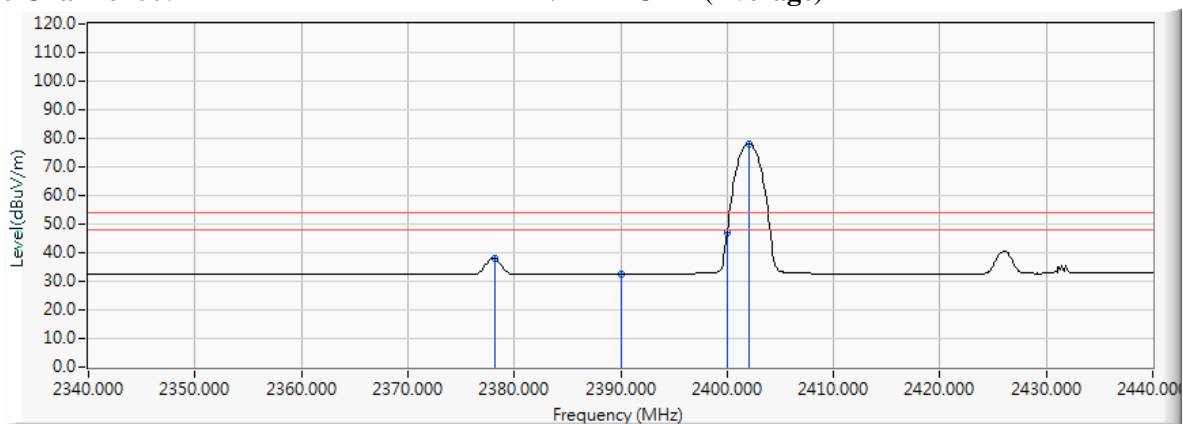


Figure Channel 00: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
78 (Peak)	2480.000	-2.605	99.472	96.867	--	--	Pass
78 (Peak)	2483.500	-2.601	48.812	46.210	74.00	54.00	Pass
78 (Peak)	2504.000	-2.633	53.806	51.174	74.00	54.00	Pass
78 (Average)	2480.100	-2.605	83.615	81.010	--	--	Pass
78 (Average)	2483.500	-2.601	37.406	34.804	74.00	54.00	Pass
78 (Average)	2504.100	-2.633	43.735	41.102	74.00	54.00	Pass

Figure Channel 00: Horizontal (Peak)

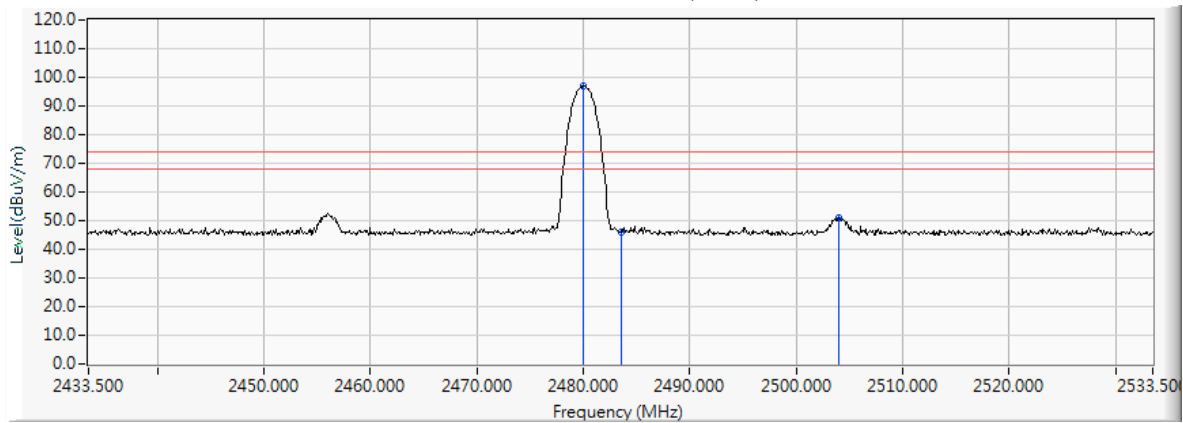
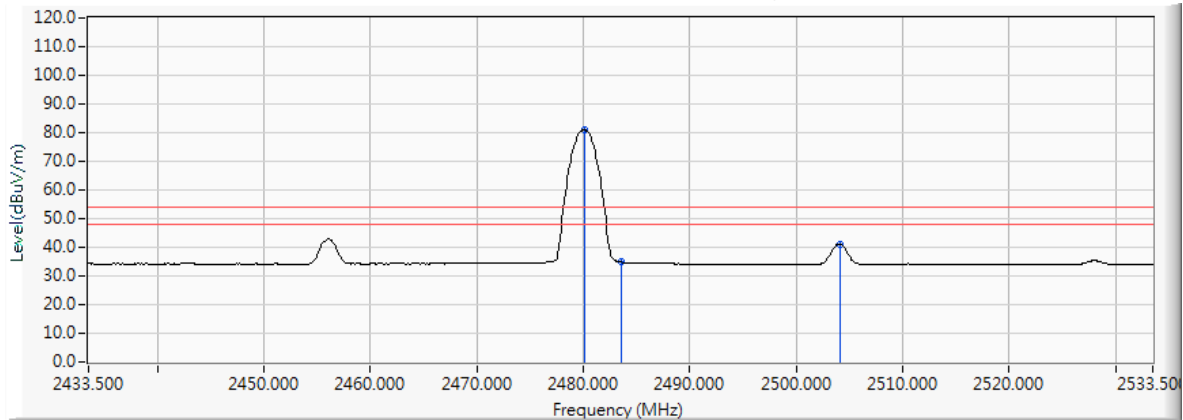


Figure Channel 00: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/11
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
78 (Peak)	2480.000	-3.978	96.989	93.011	--	--	Pass
78 (Peak)	2483.500	-3.966	49.269	45.302	74.00	54.00	Pass
78 (Peak)	2503.900	-3.891	53.222	49.331	74.00	54.00	Pass
78 (Average)	2480.000	-3.978	81.641	77.663	--	--	Pass
78 (Average)	2483.500	-3.966	37.281	33.314	74.00	54.00	Pass
78 (Average)	2504.100	-3.891	42.603	38.713	74.00	54.00	Pass

Figure Channel 78: VERTICAL (Peak)

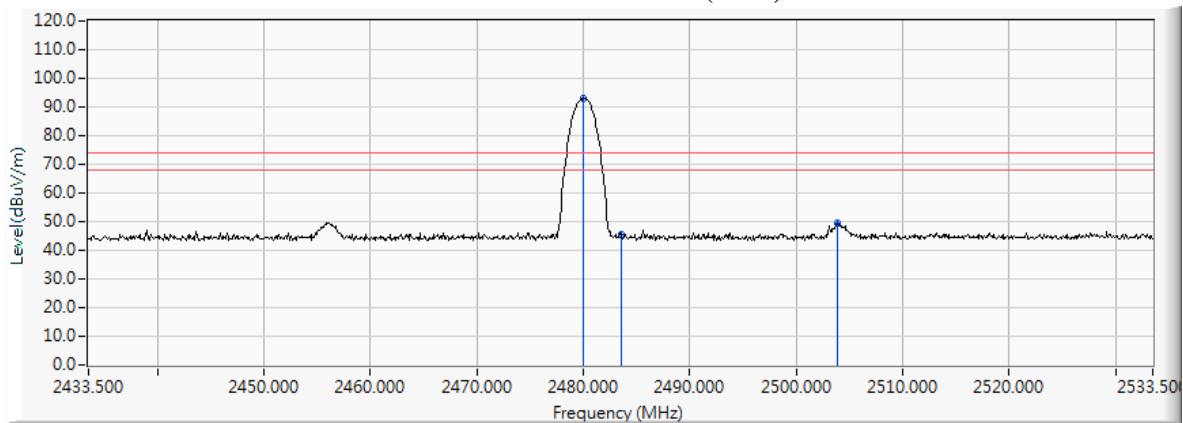
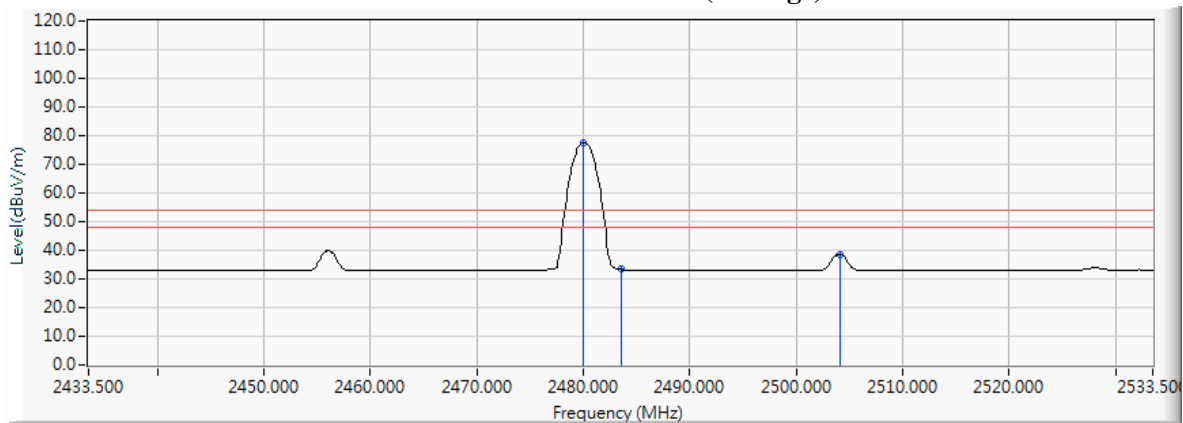


Figure Channel 78: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correction Factor.
6. The average measurement was not performed when the peak measured data is under the limit of average detection.

Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

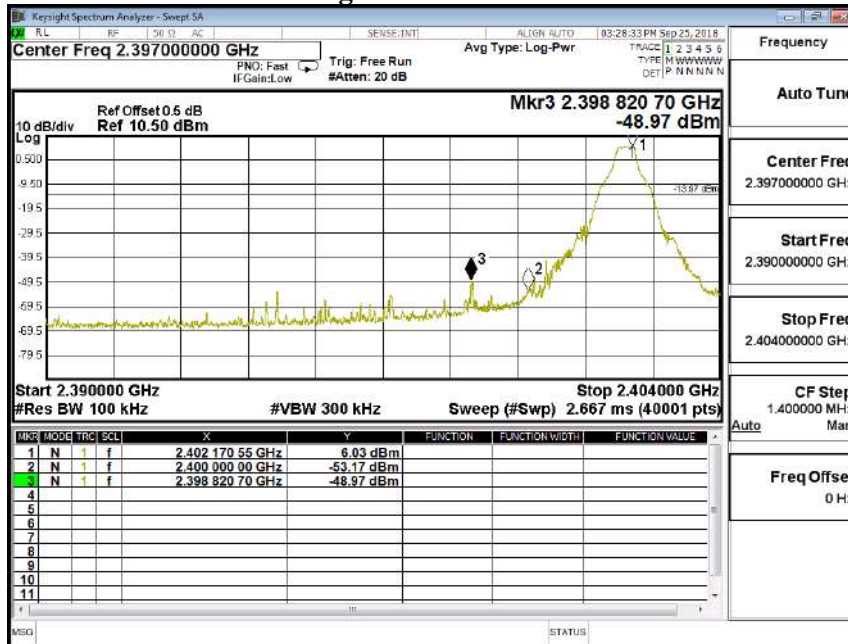
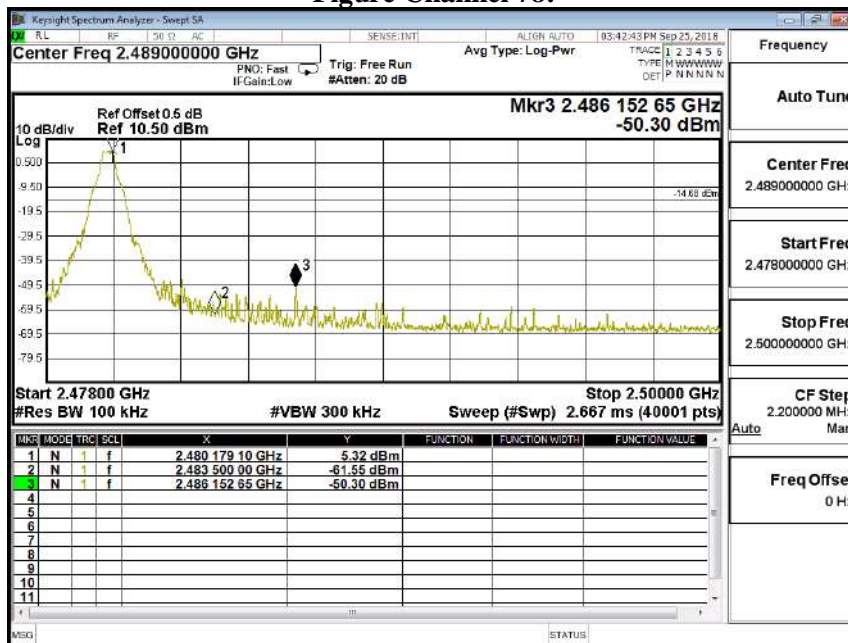


Figure Channel 78:



Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

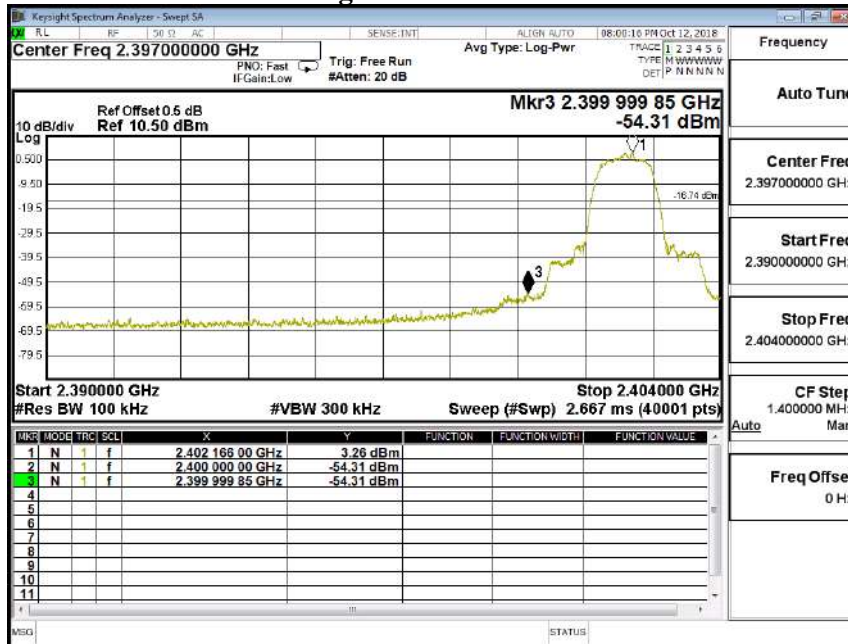
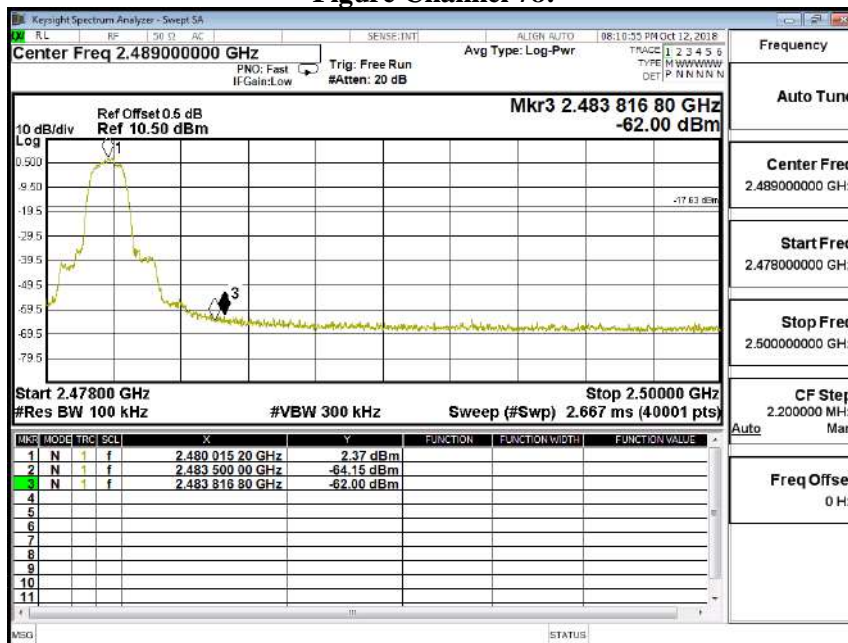


Figure Channel 78:



Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

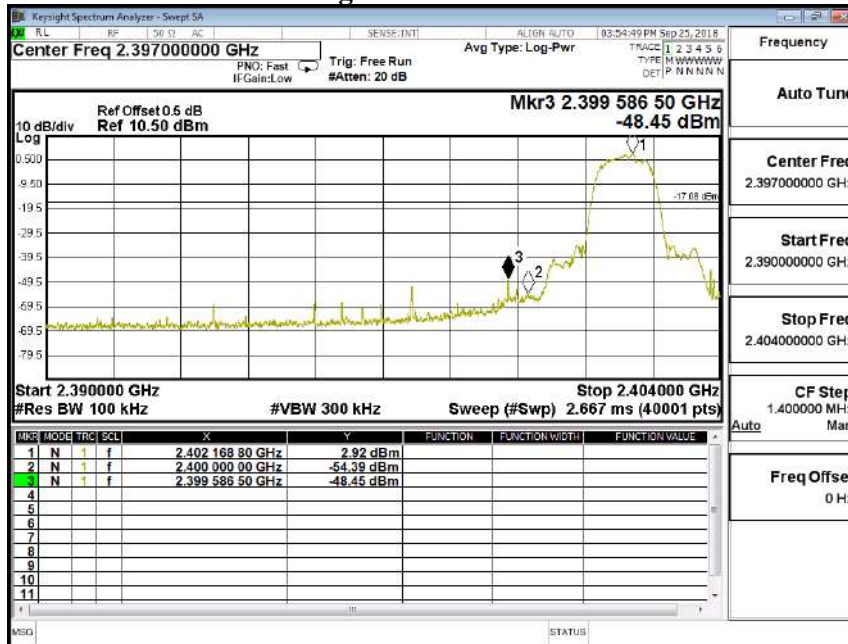
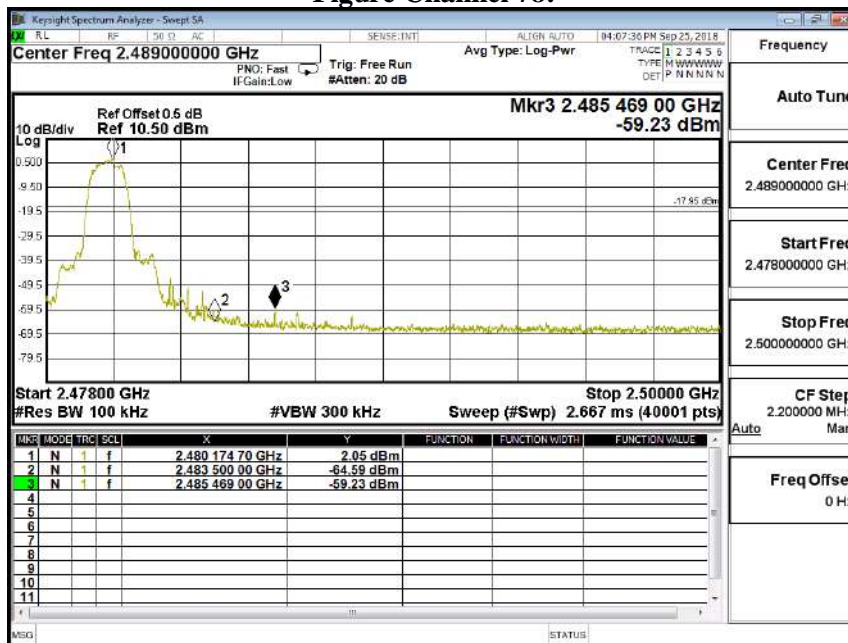


Figure Channel 78:



Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

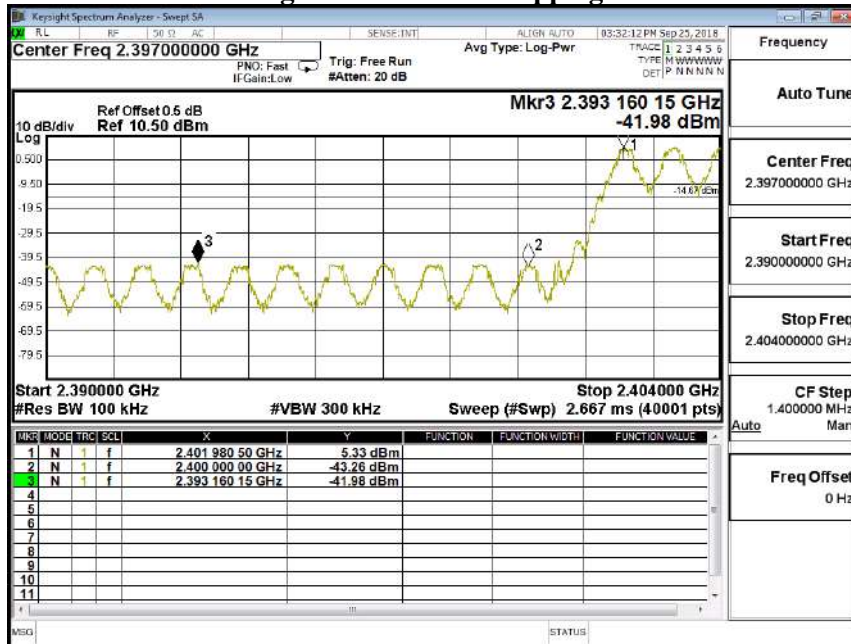
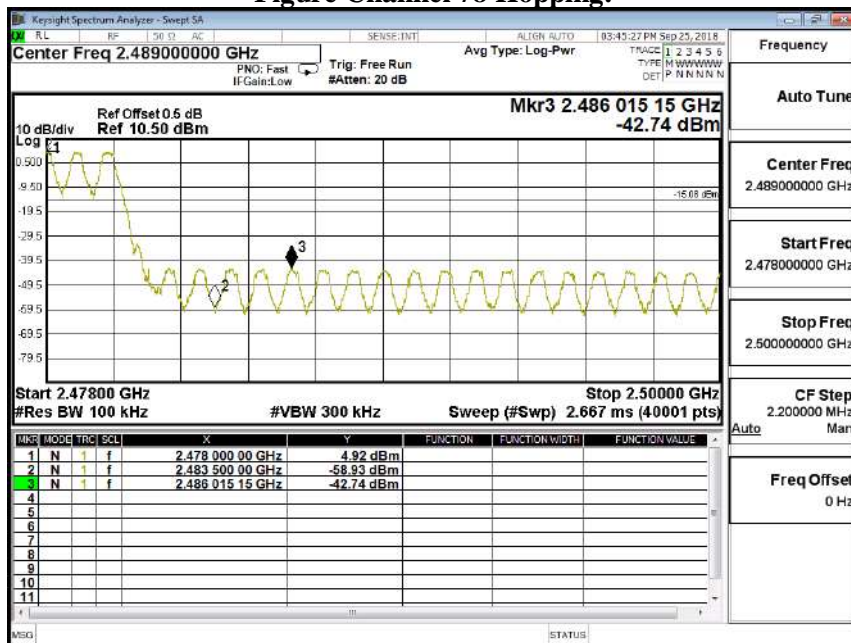


Figure Channel 78 Hopping:



Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/10/12
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK) (Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

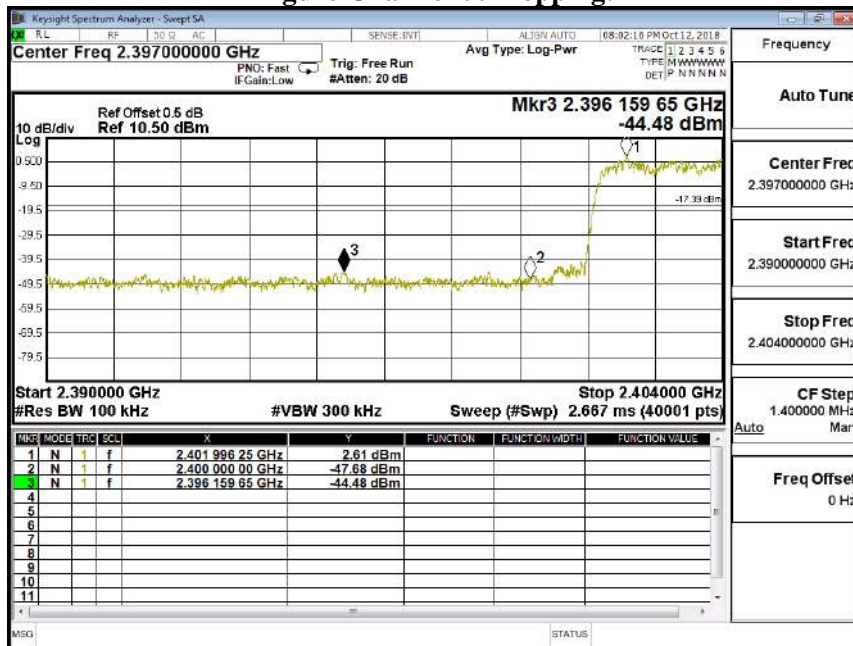
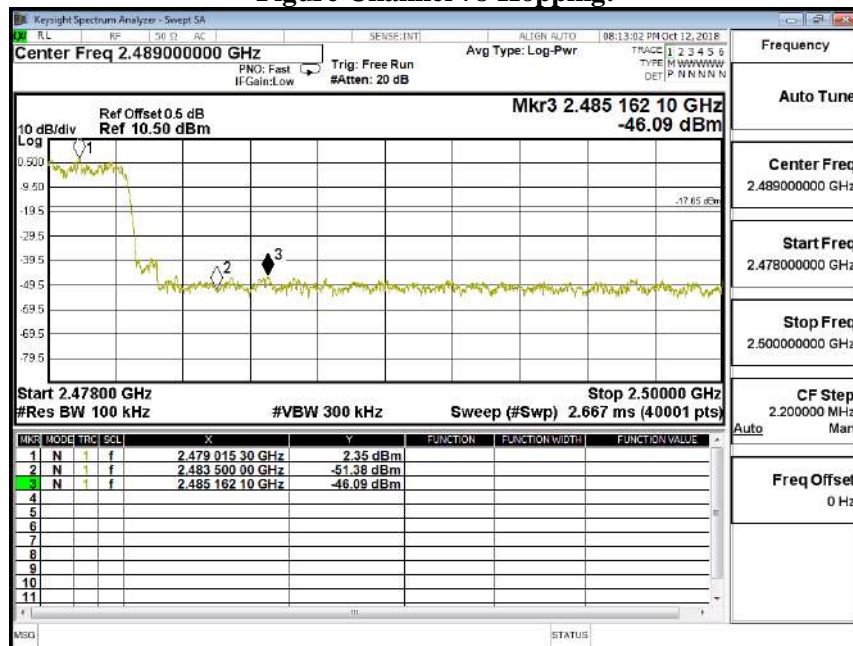


Figure Channel 78 Hopping:



Product : Portable Printer
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

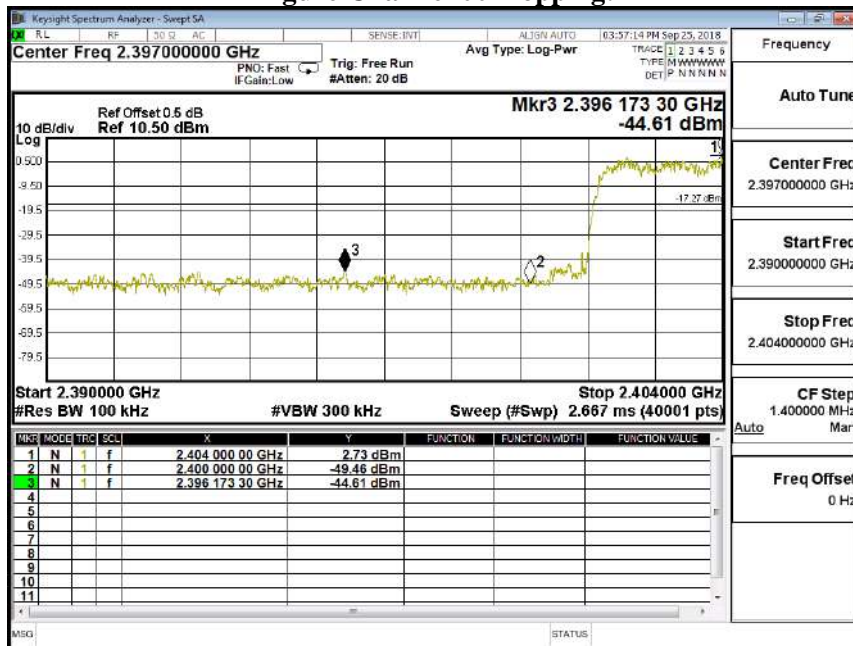
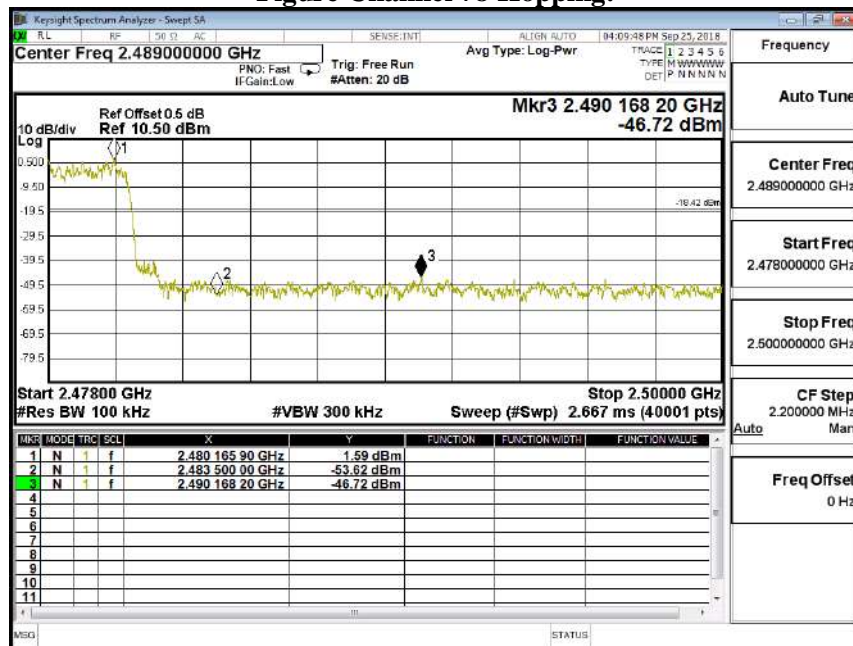
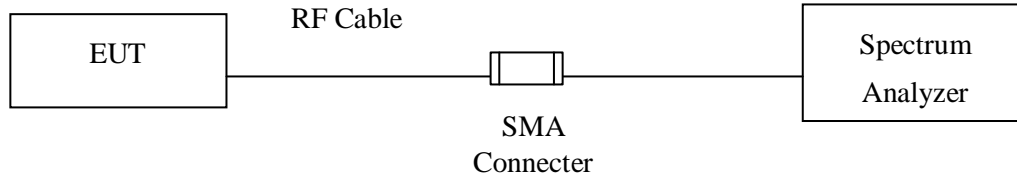


Figure Channel 78 Hopping:



7. Channel Number

7.1. Test Setup



7.2. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 15 hopping frequencies.

7.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

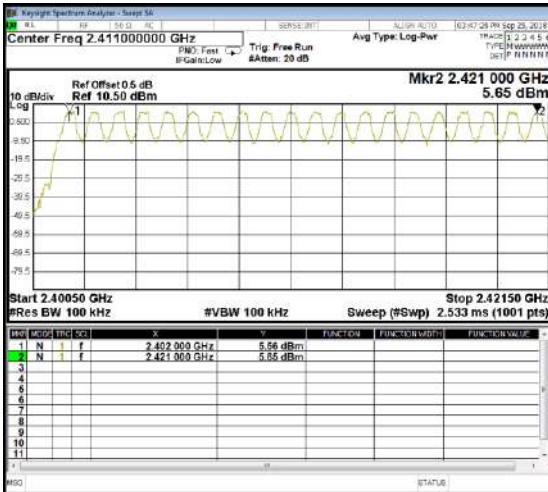
N/A

7.5. Test Result of Channel Number

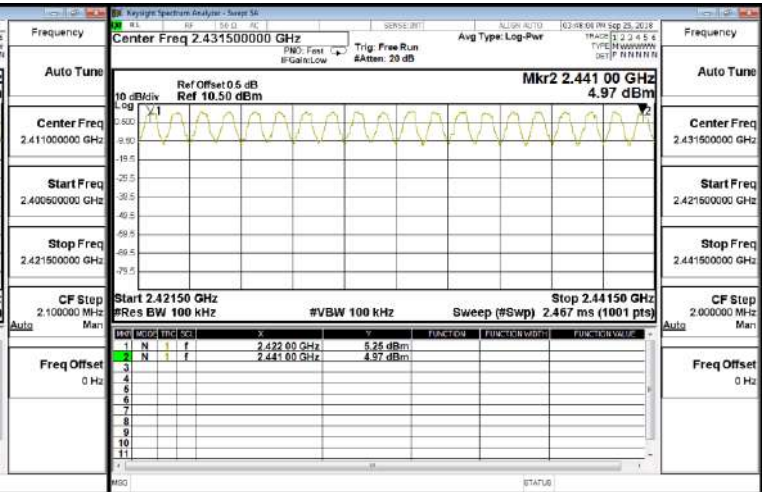
Product : Portable Printer
 Test Item : Channel Number
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

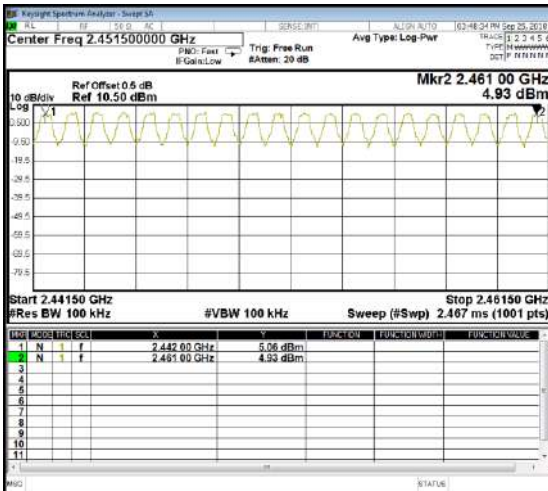
2402-2421MHz



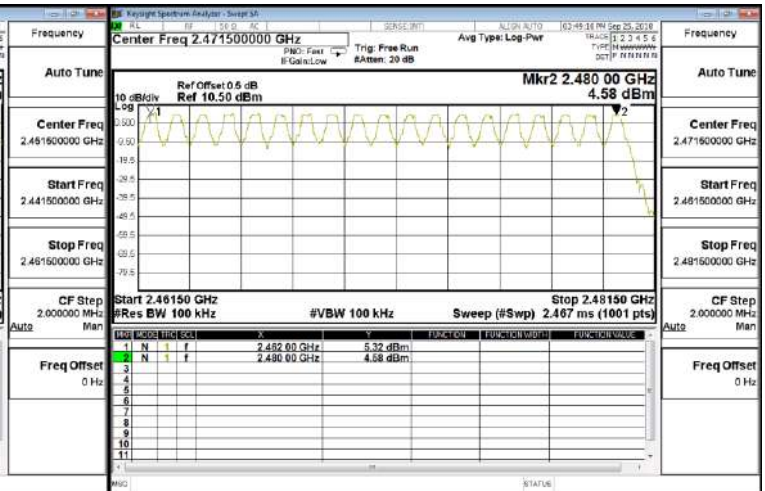
2422-2441MHz



2442-2461MHz



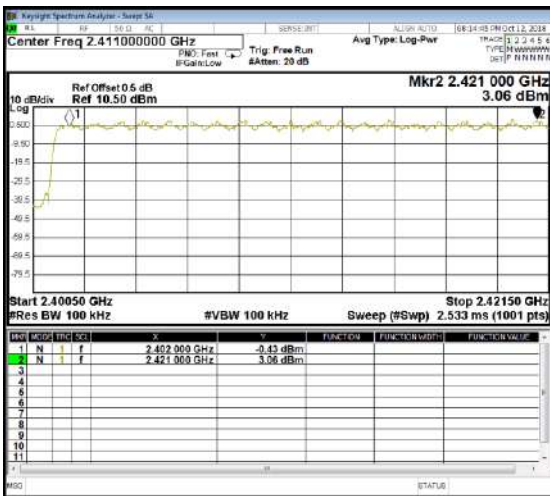
2462-2480MHz



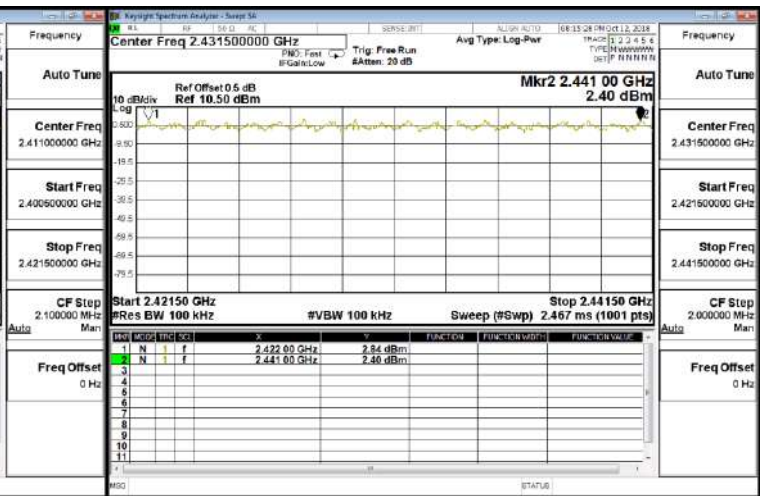
Product : Portable Printer
 Test Item : Channel Number
 Test Site : No.3 OATS
 Test date : 2018/10/13
 Test Mode : Mode 1: Transmit - 2Mbps(π /4DQPSK)

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

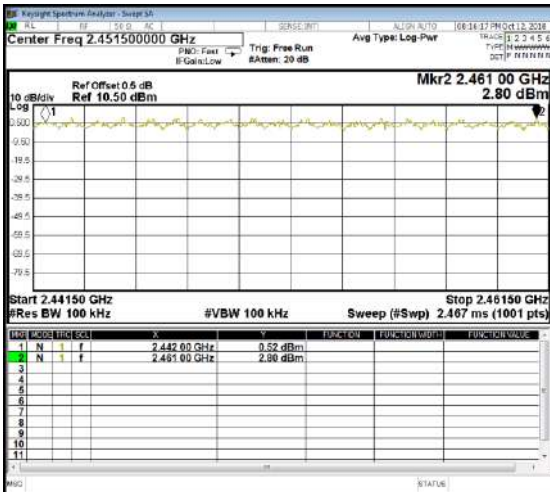
2402-2421MHz



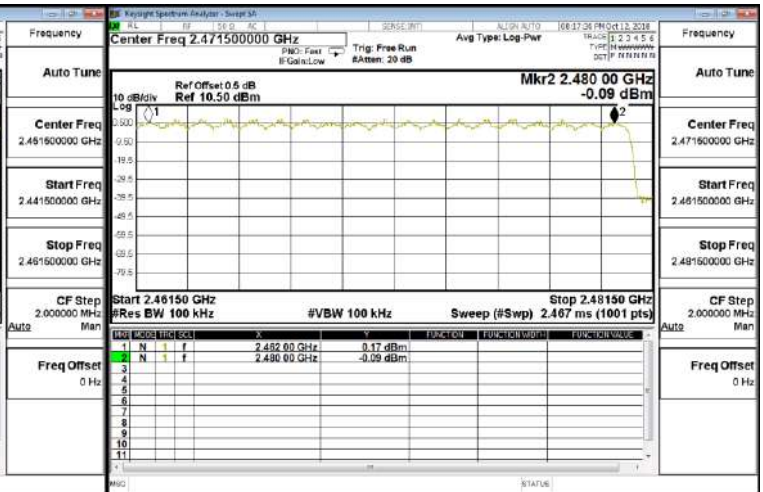
2422-2441MHz



2442-2461MHz



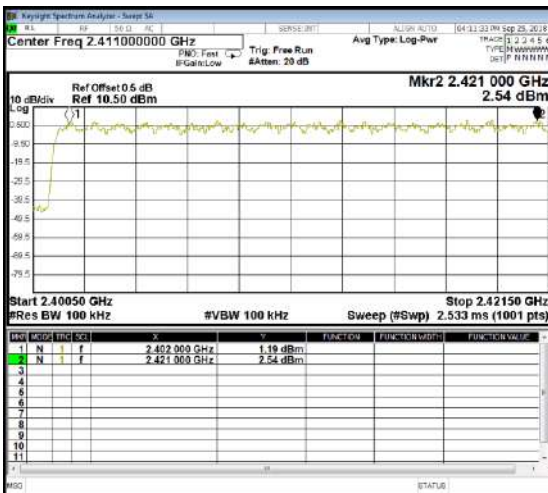
2462-2480MHz



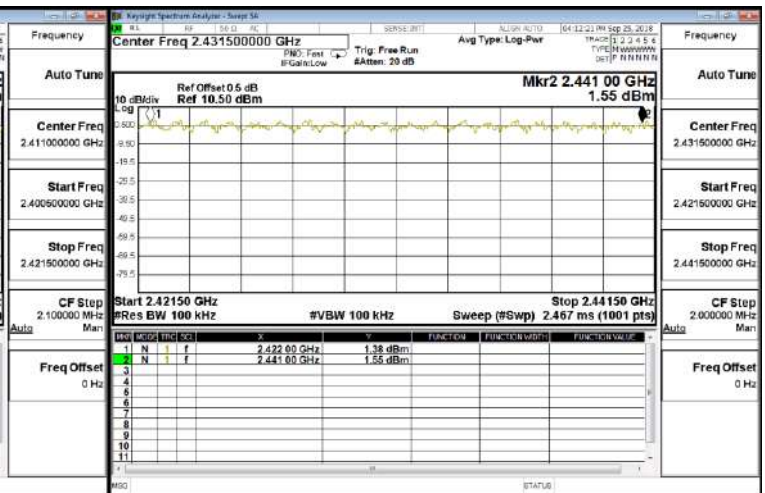
Product : Portable Printer
 Test Item : Channel Number
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

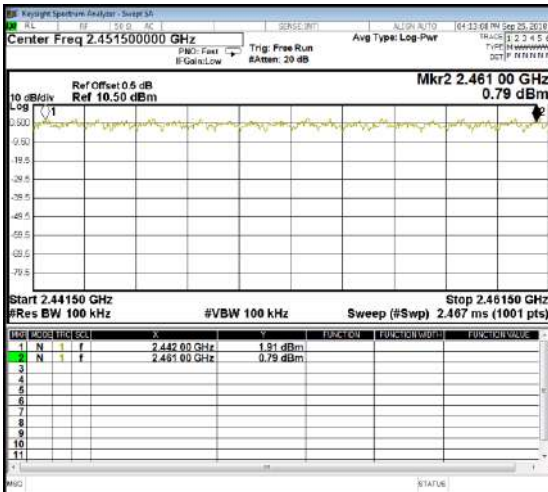
2402-2421MHz



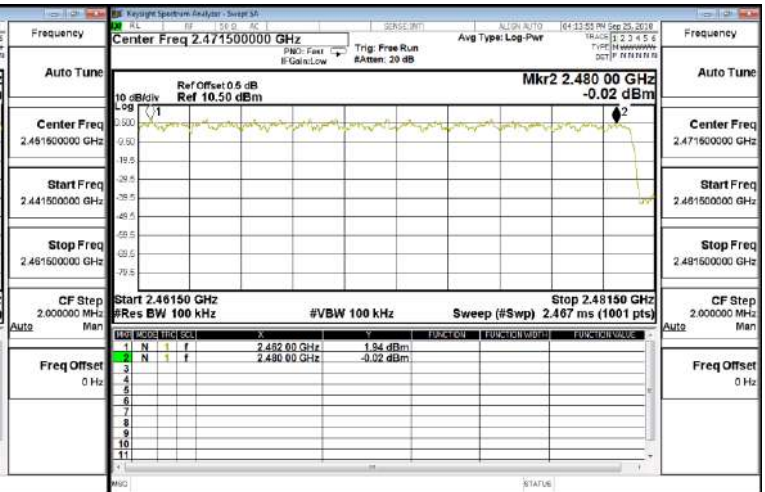
2422-2441MHz



2442-2461MHz

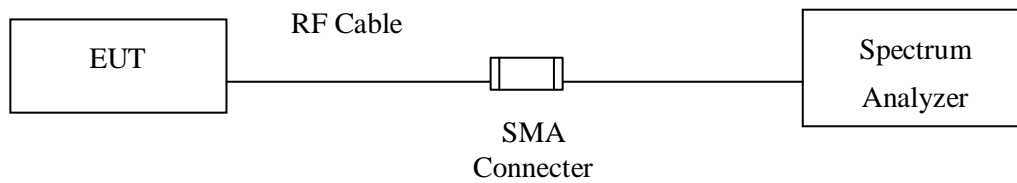


2462-2480MHz



8. Channel Separation

8.1. Test Setup



8.2. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

8.4. Uncertainty

$\pm 283\text{Hz}$

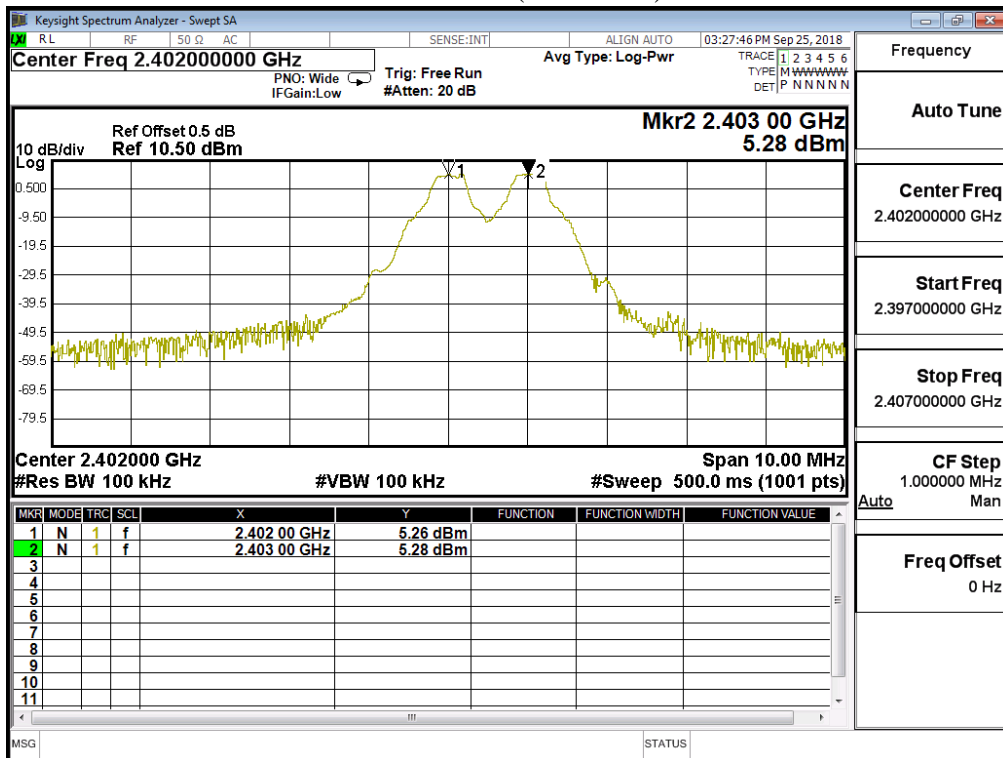
8.5. Test Result of Channel Separation

Product : Portable Printer
 Test Item : Channel Separation
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

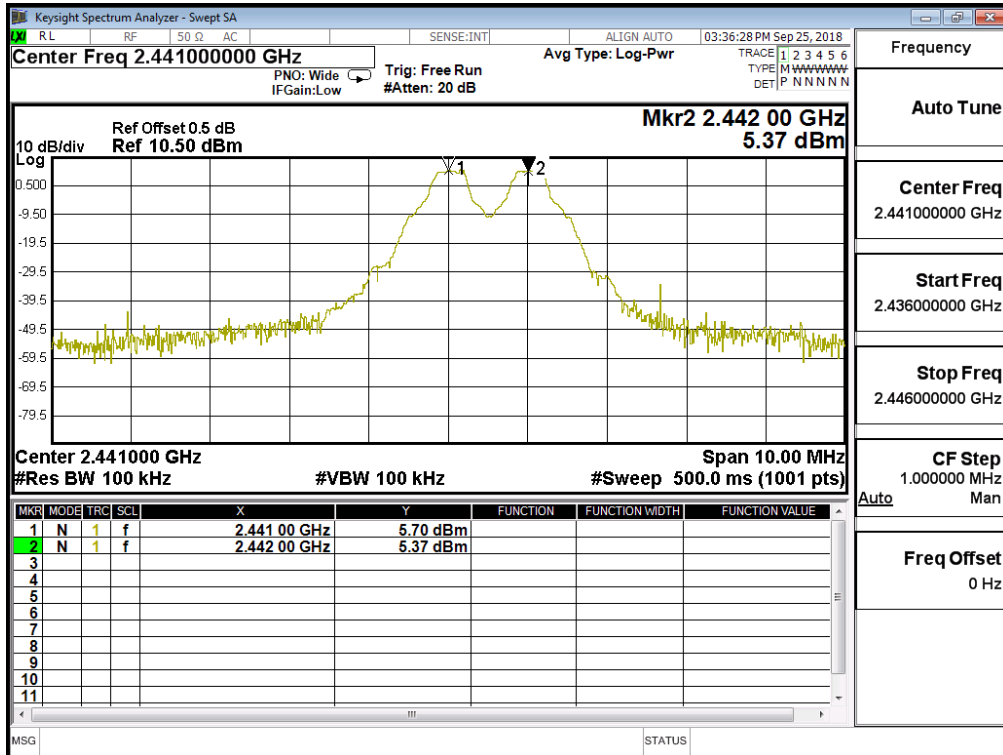
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	662.0	Pass
39	2441	1000	>25 kHz	664.0	Pass
78	2480	1000	>25 kHz	664.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

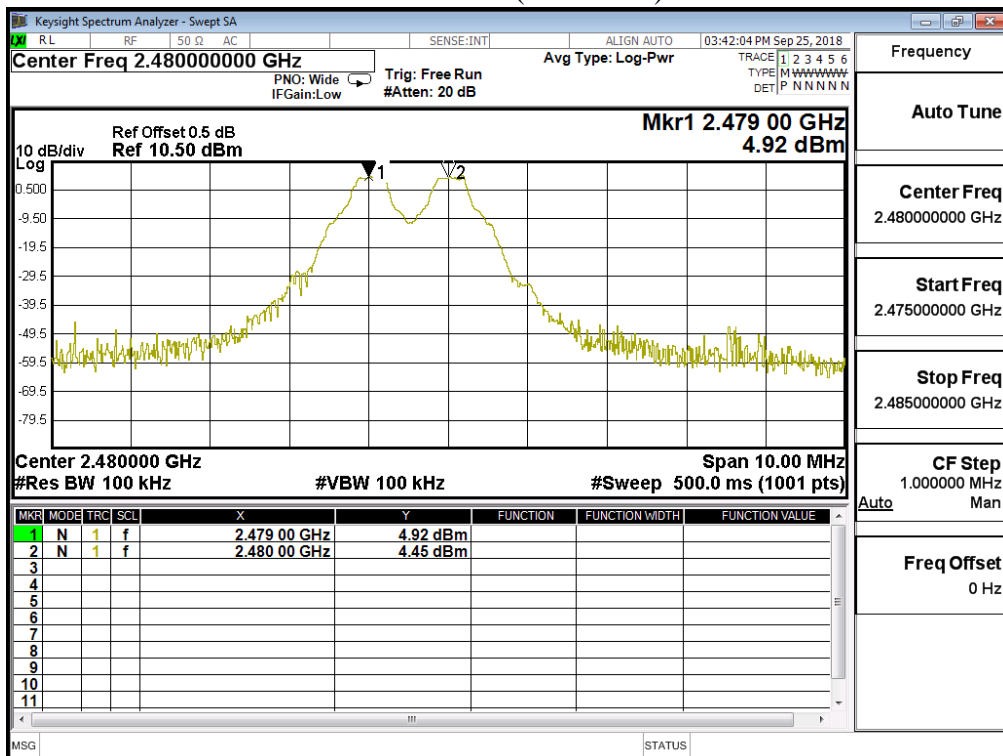
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

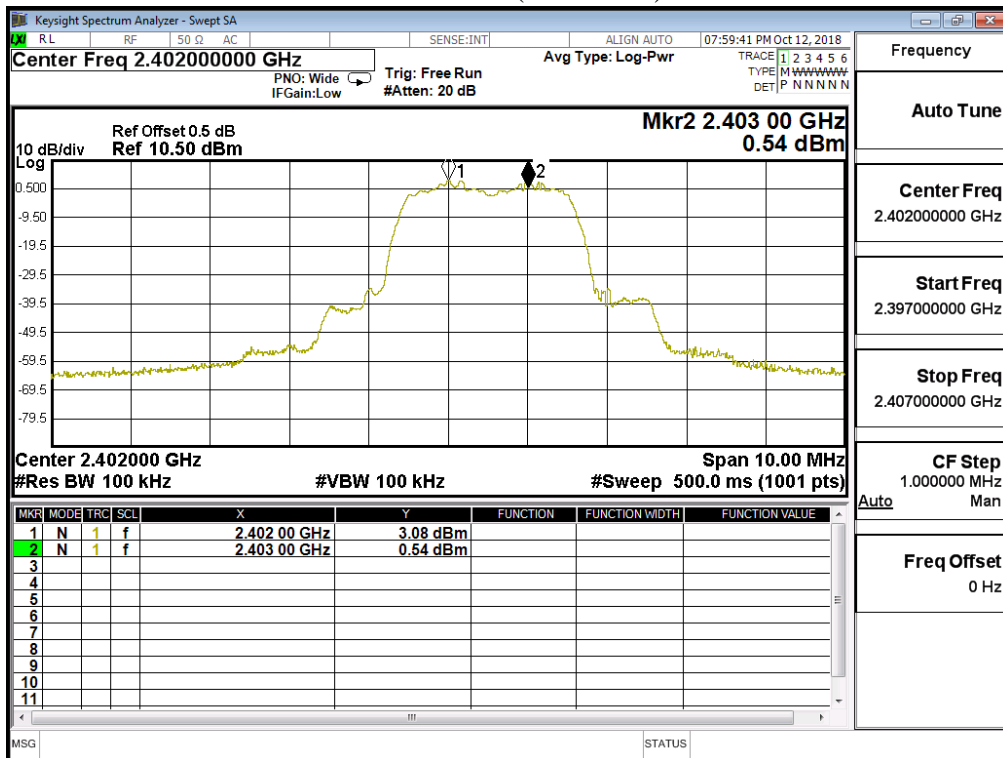


Product : Portable Printer
 Test Item : Channel Separation
 Test Site : No.3 OATS
 Test date : 2018/10/13
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)

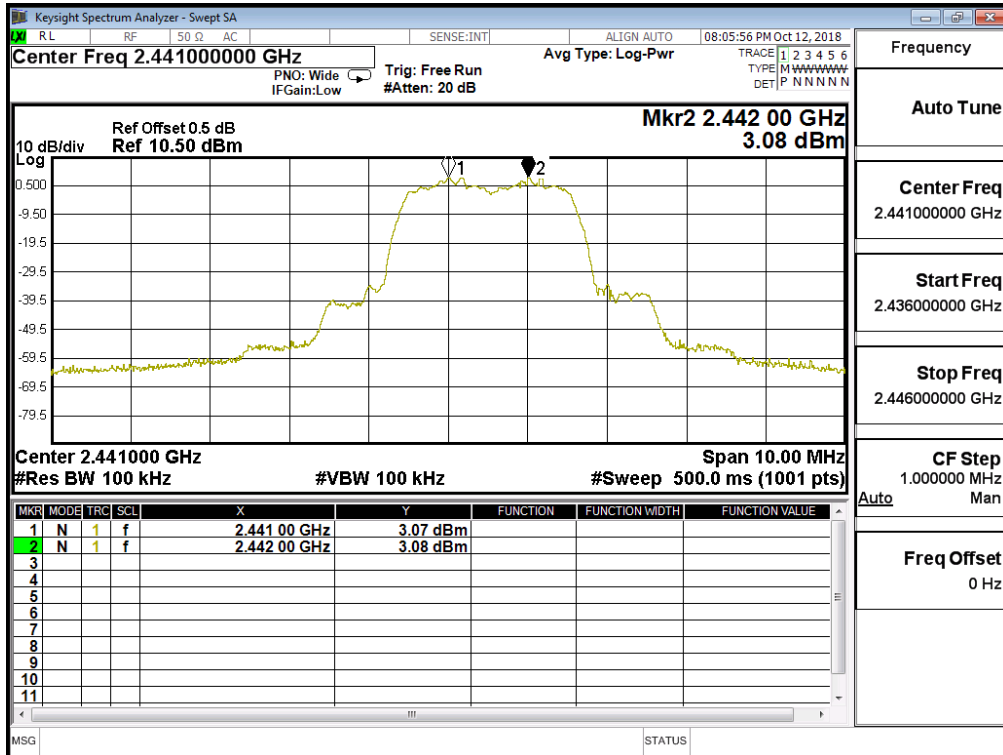
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	896.0	Pass
39	2441	1000	>25 kHz	898.0	Pass
78	2480	1000	>25 kHz	894.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

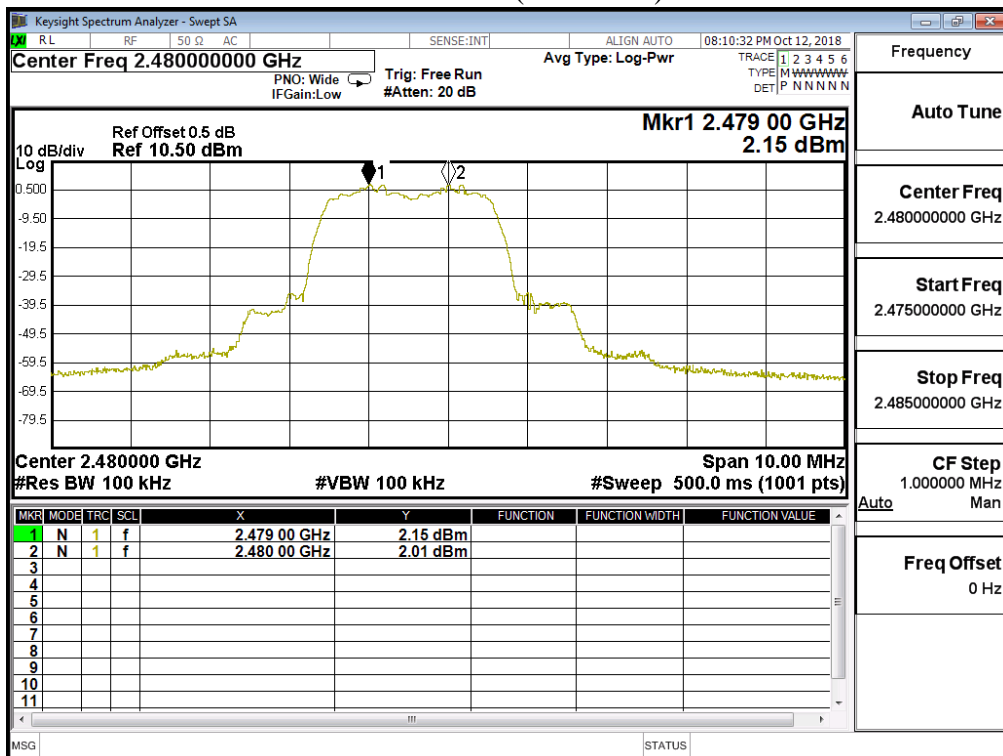
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

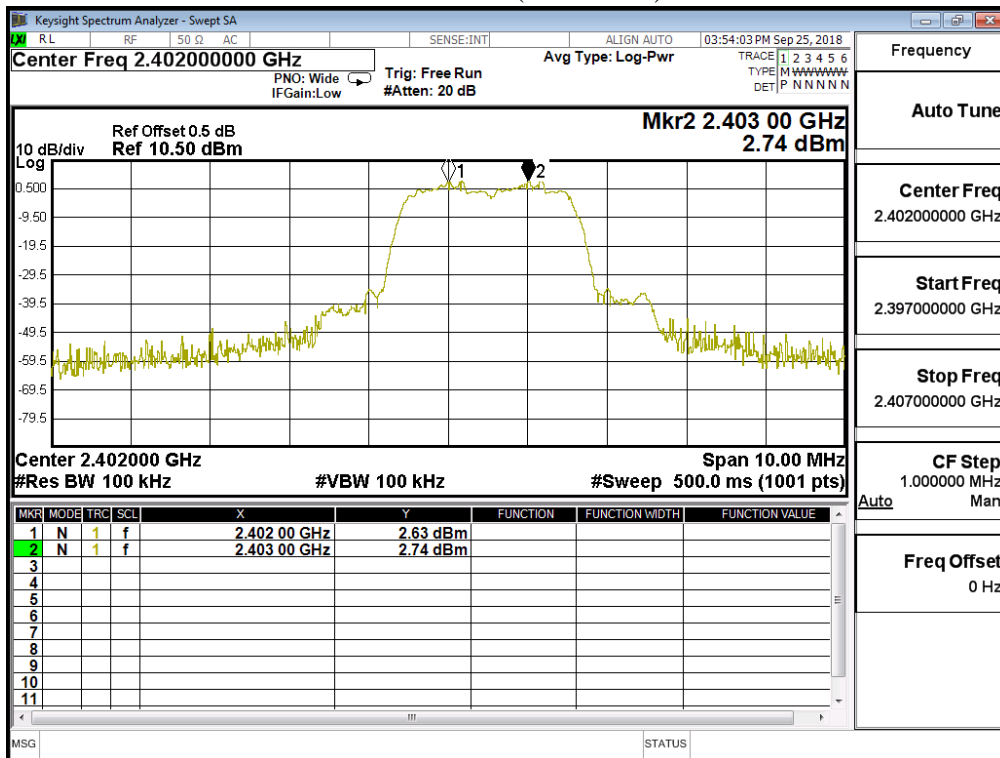


Product : Portable Printer
 Test Item : Channel Separation
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

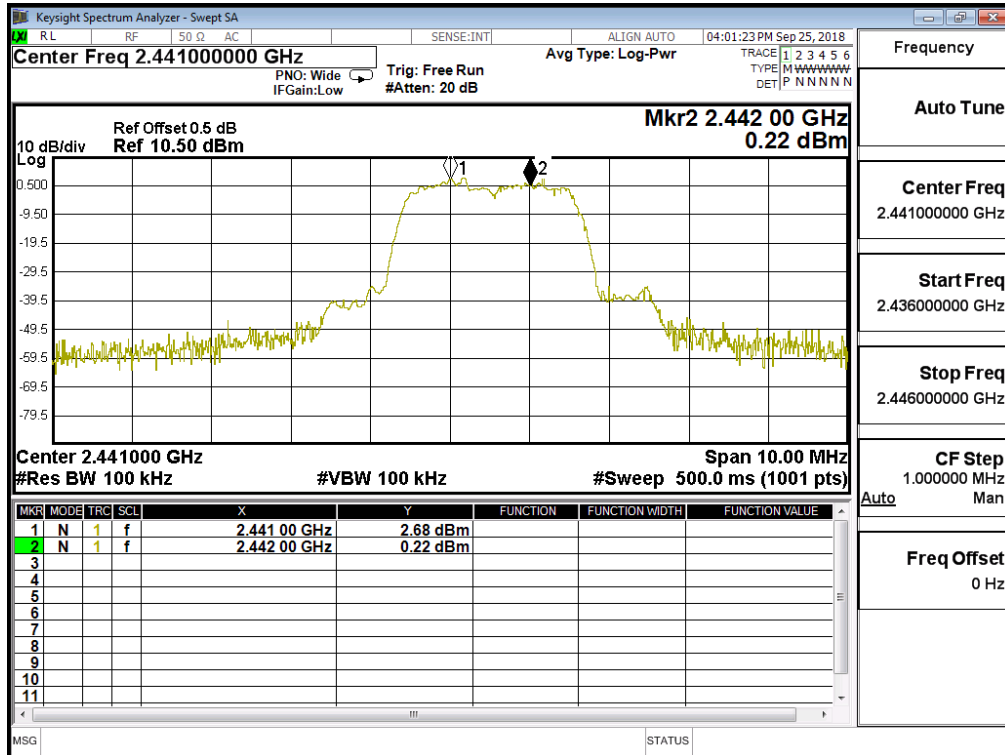
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	880.0	Pass
39	2441	1000	>25 kHz	878.0	Pass
78	2480	1000	>25 kHz	880.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

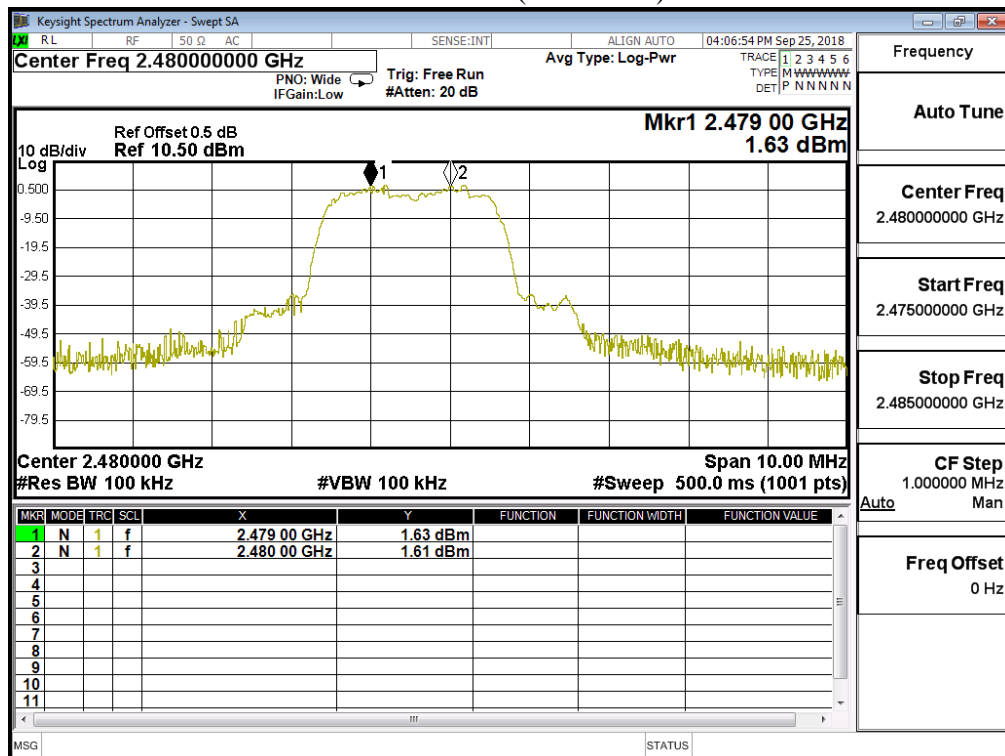
Channel 00 (2402MHz)



Channel 39 (2441MHz)

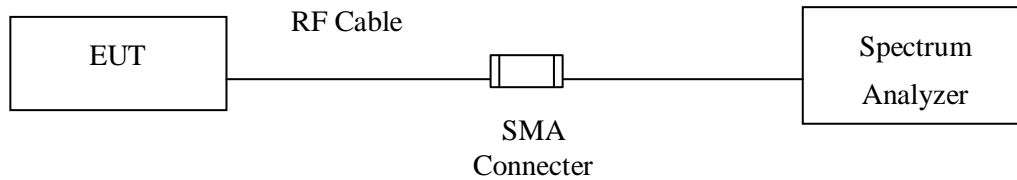


Channel 78 (2480MHz)



9. Dwell Time

9.1. Test Setup



9.2. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

9.4. Uncertainty

$\pm 25\text{msec}$

9.5. Test Result of Dwell Time

Product : Portable Printer
 Test Item : Dwell Time
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (Channel 00,39,78 –DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.887	13	50	0.75	0.300	0.4	Pass
2441	2.887	13	50	0.75	0.300	0.4	Pass
2480	2.887	13	50	0.75	0.300	0.4	Pass

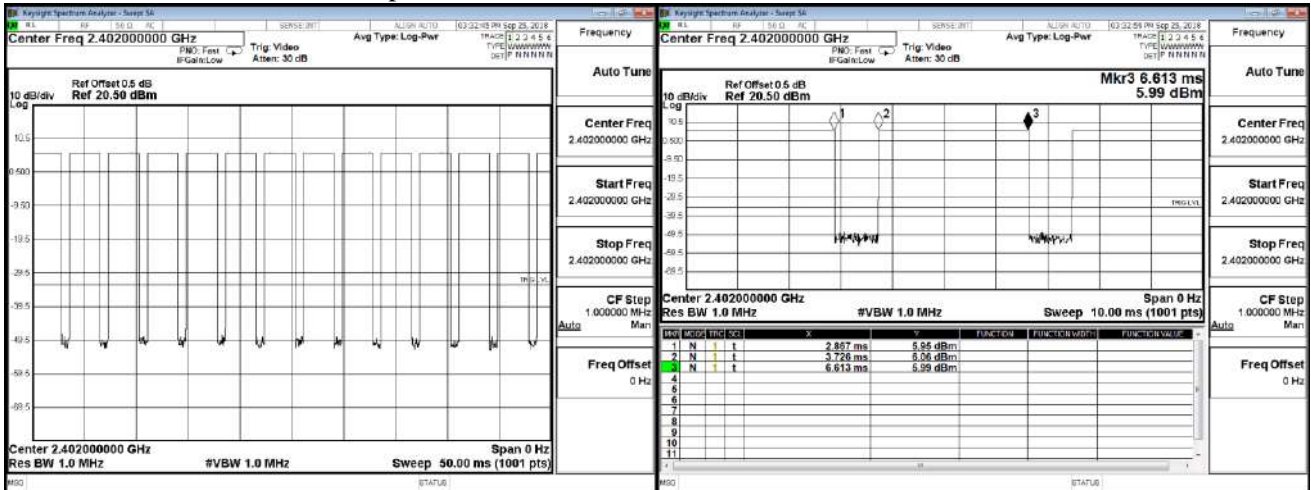
Duty cycle = ((Time slot length(ms)*Hopping of Number) / Sweep time (ms))

Dwell time = (Duty cycle /79) * (79*0.4)

Dwell time in AFH mode / 20 channels with hopping rate 800 hops /sec.

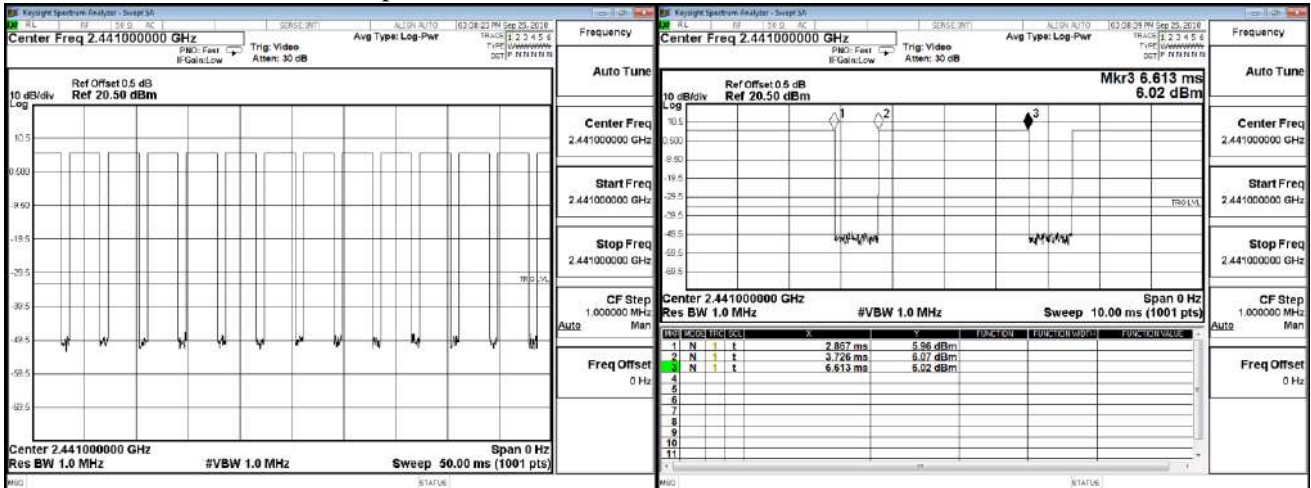
CH 00 Time Interval between hops

CH 00 Transmission Time



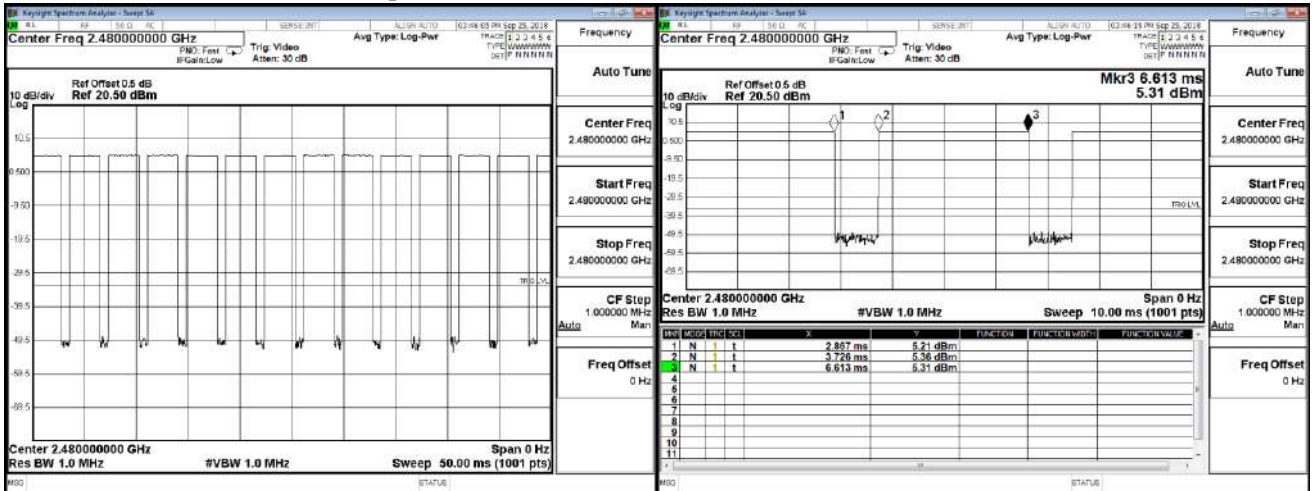
CH39 Time Interval between hops

CH 39 Transmission Time



CH 78 Time Interval between hops

CH 78 Transmission Time



Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

Product : Portable Printer
 Test Item : Dwell Time
 Test Site : No.3 OATS
 Test date : 2018/10/13
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)(Channel 00,39,78 –2DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.887	13	50	0.75	0.300	0.4	Pass
2441	2.887	13	50	0.75	0.300	0.4	Pass
2480	2.887	13	50	0.75	0.300	0.4	Pass

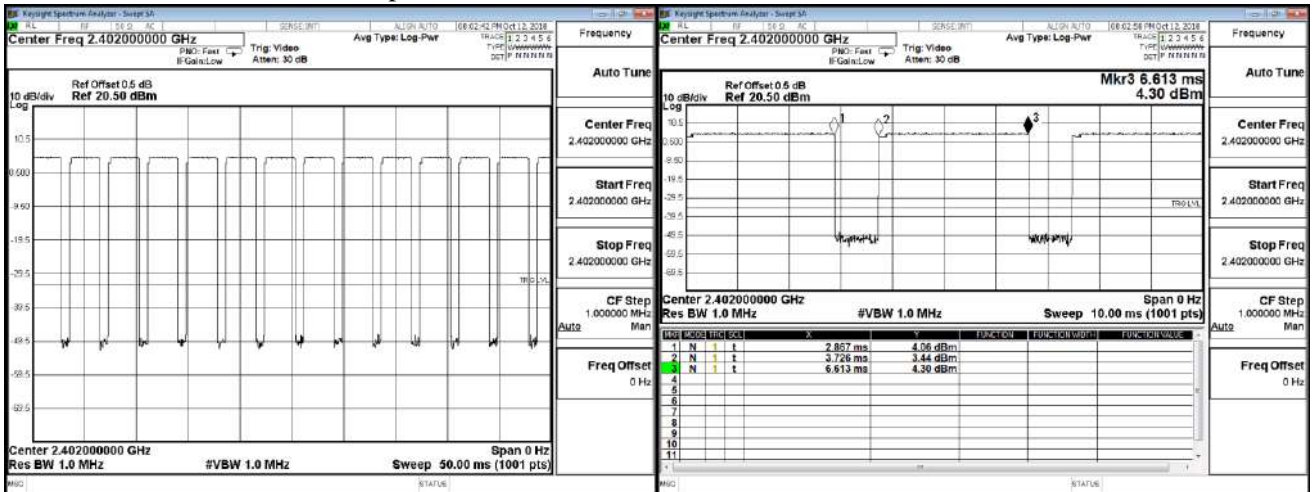
Duty cycle = ((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time = (Duty cycle /79) * (79*0.4)

Dwell time in AFH mode / 20 channels with hopping rate 800 hops /sec.

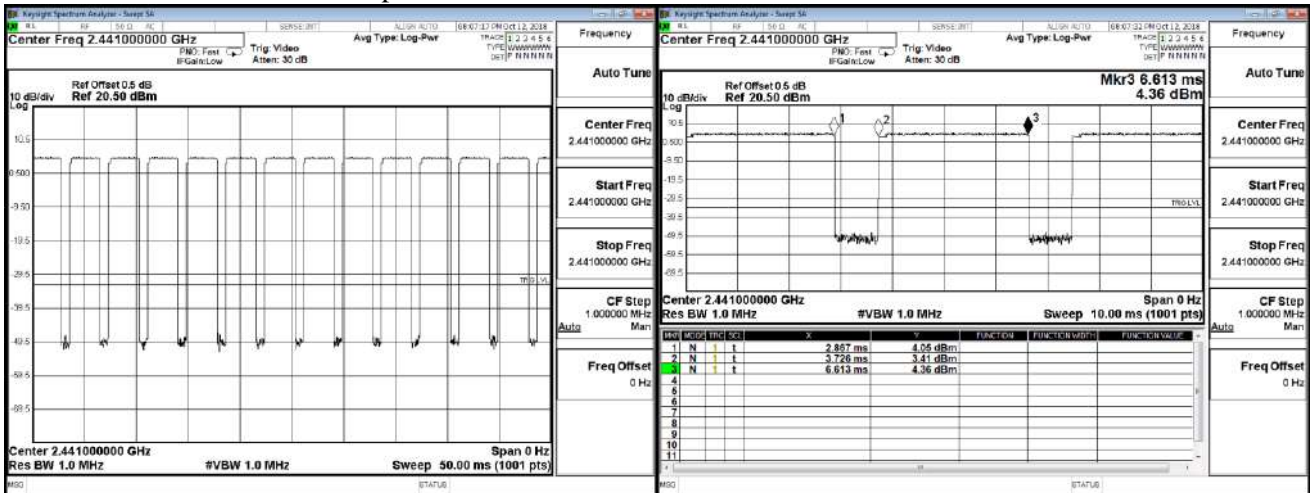
CH 00 Time Interval between hops

CH 00 Transmission Time



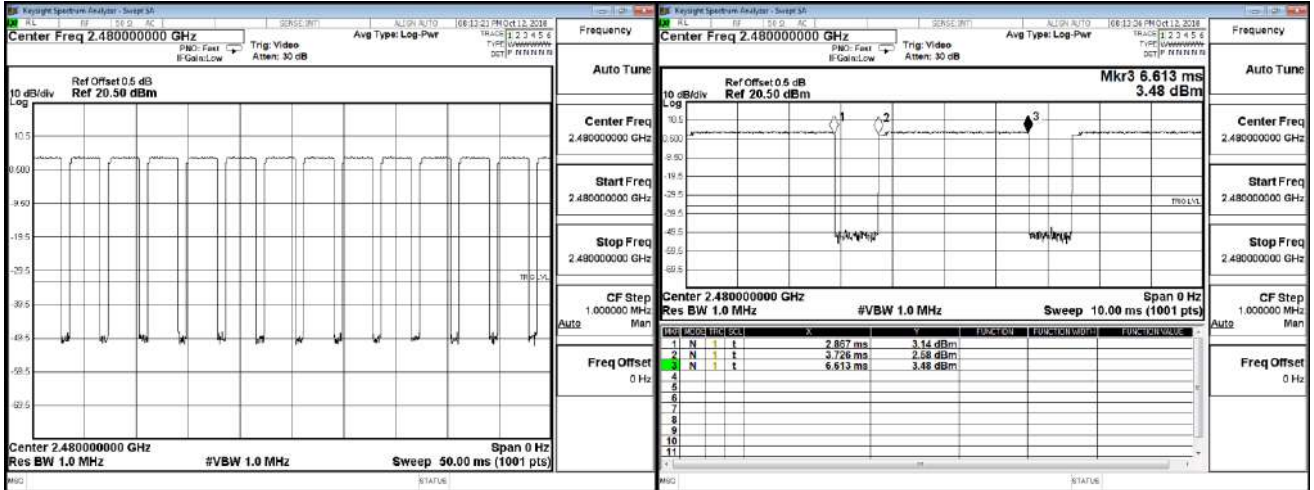
CH39 Time Interval between hops

CH 39Transmission Time



CH 78 Time Interval between hops

CH 78 Transmission Time



Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

Product : Portable Printer
 Test Item : Dwell Time
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (Channel 00,39,78 –3DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.887	13	50	0.75	0.300	0.4	Pass
2441	2.887	13	50	0.75	0.300	0.4	Pass
2480	2.887	13	50	0.75	0.300	0.4	Pass

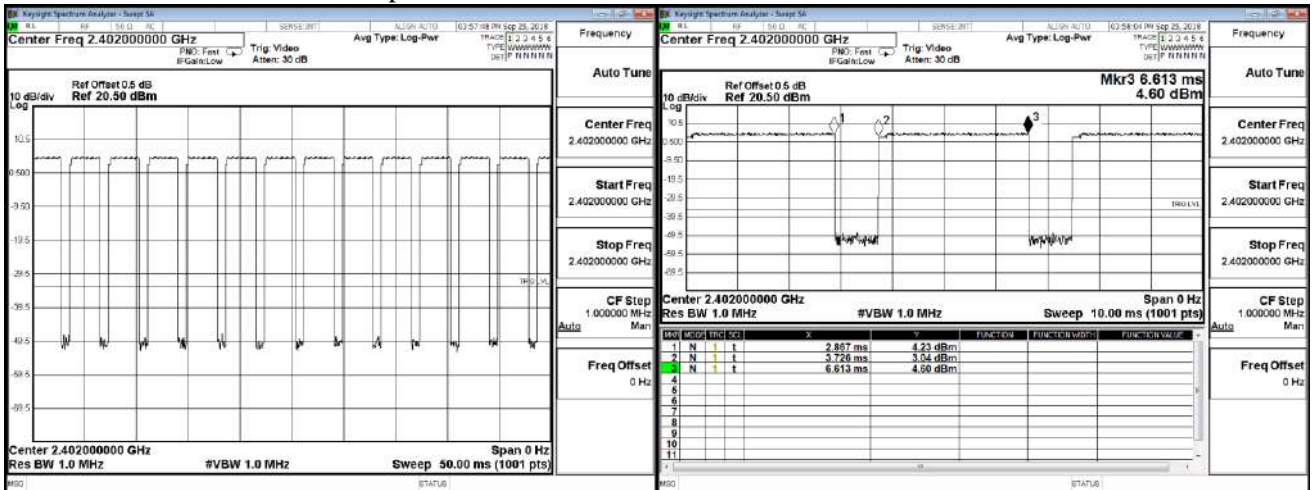
Duty cycle = ((Time slot length(ms)*Hopping of Number) / Sweep time (ms))

Dwell time = (Duty cycle / 79) * (79*0.4)

Dwell time in AFH mode / 20 channels with hopping rate 800 hops /sec.

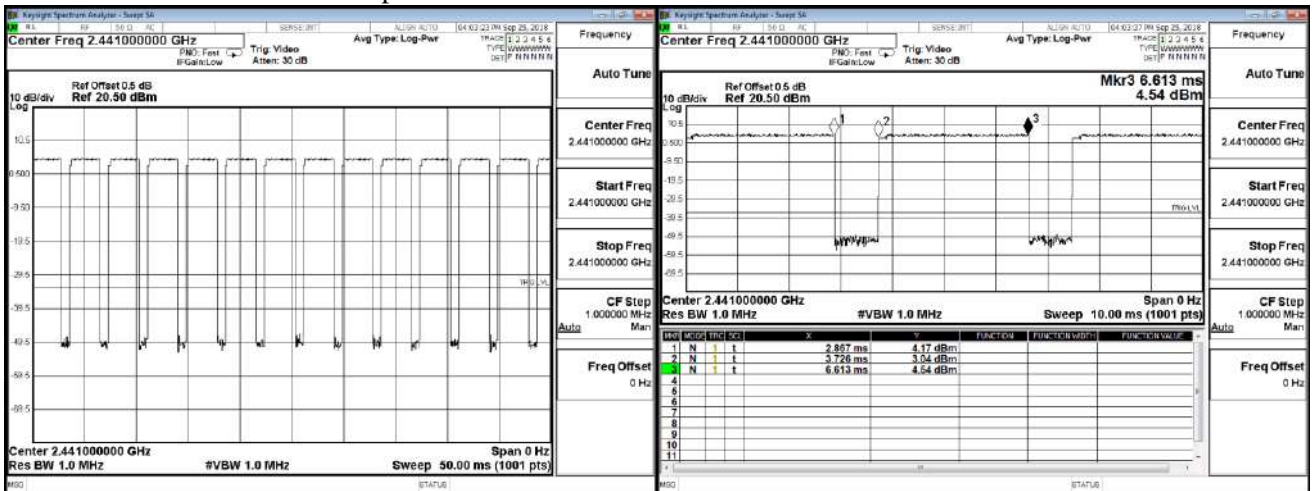
CH 00 Time Interval between hops

CH 00 Transmission Time



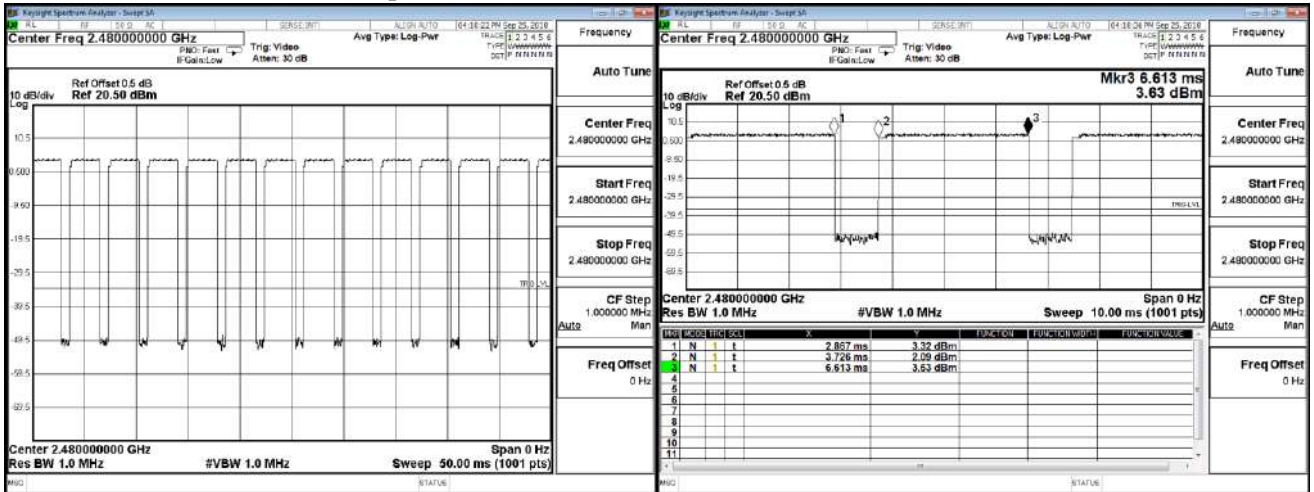
CH39 Time Interval between hops

CH 39 Transmission Time



CH 78 Time Interval between hops

CH 78 Transmission Time

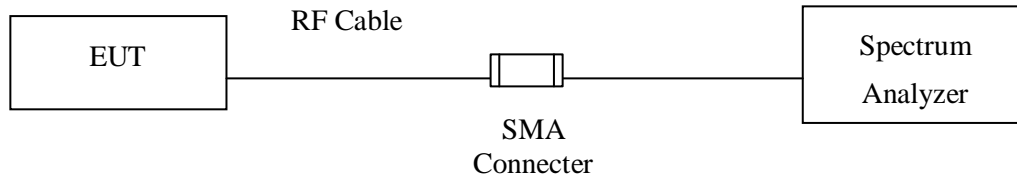


Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Setup



10.2. Limits

N/A

10.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

10.4. Uncertainty

$\pm 283\text{Hz}$

10.5. Test Result of Occupied Bandwidth

Product : Portable Printer
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	993	--	NA
39	2441	996	--	NA
78	2480	996	--	NA

Figure Channel 00:

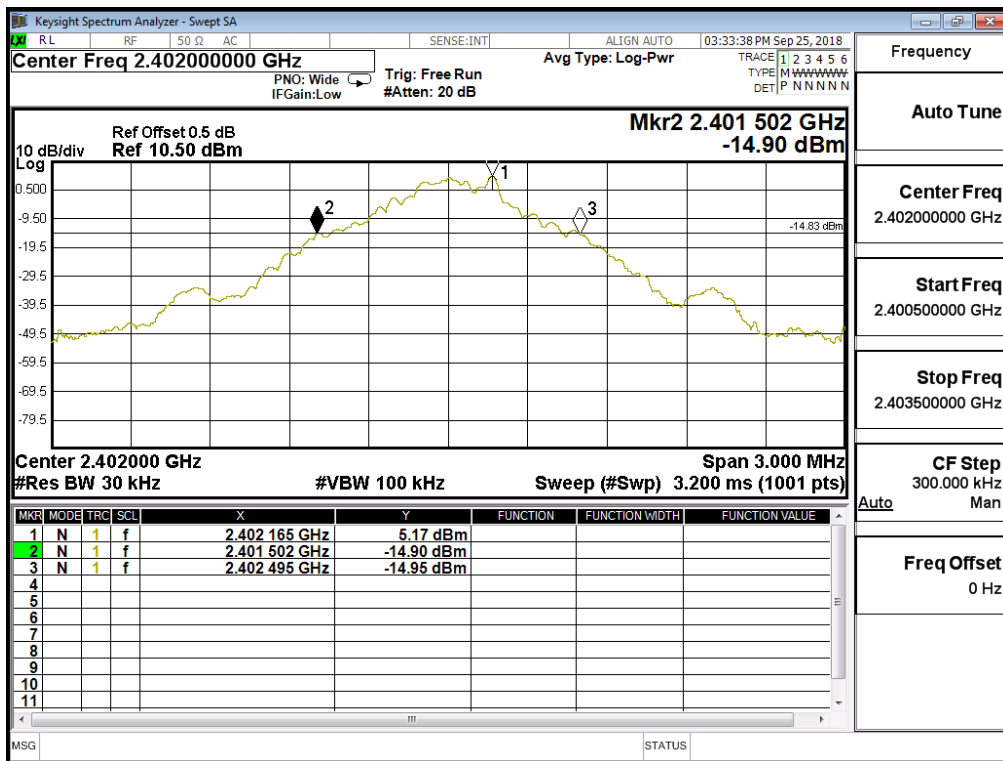


Figure Channel 39:

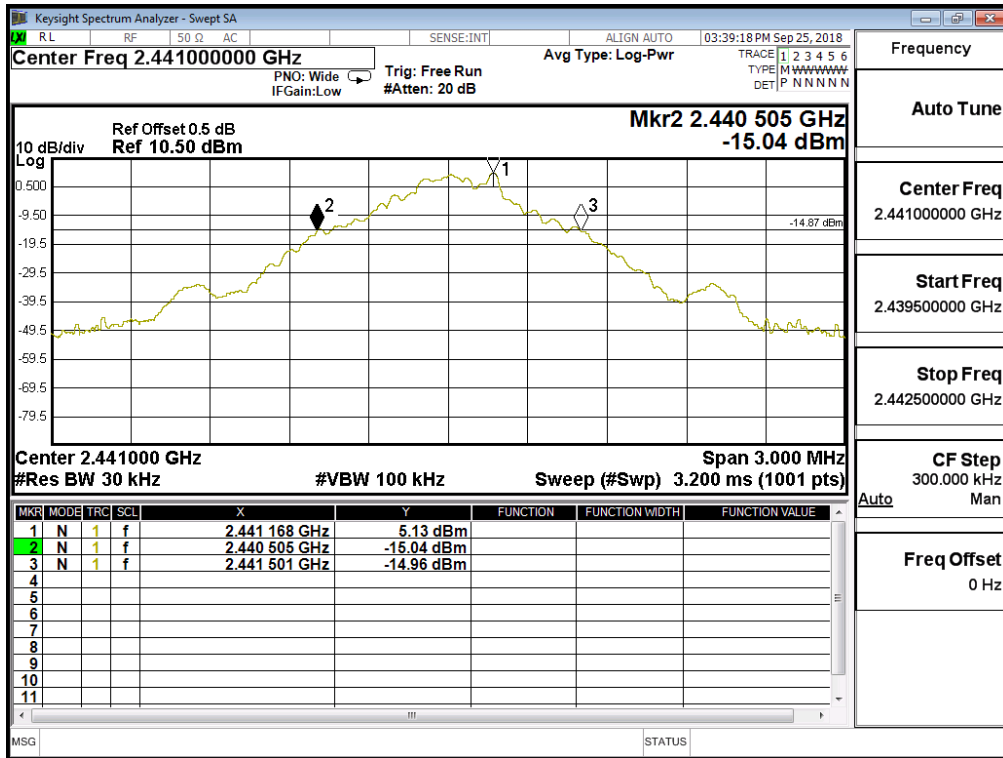
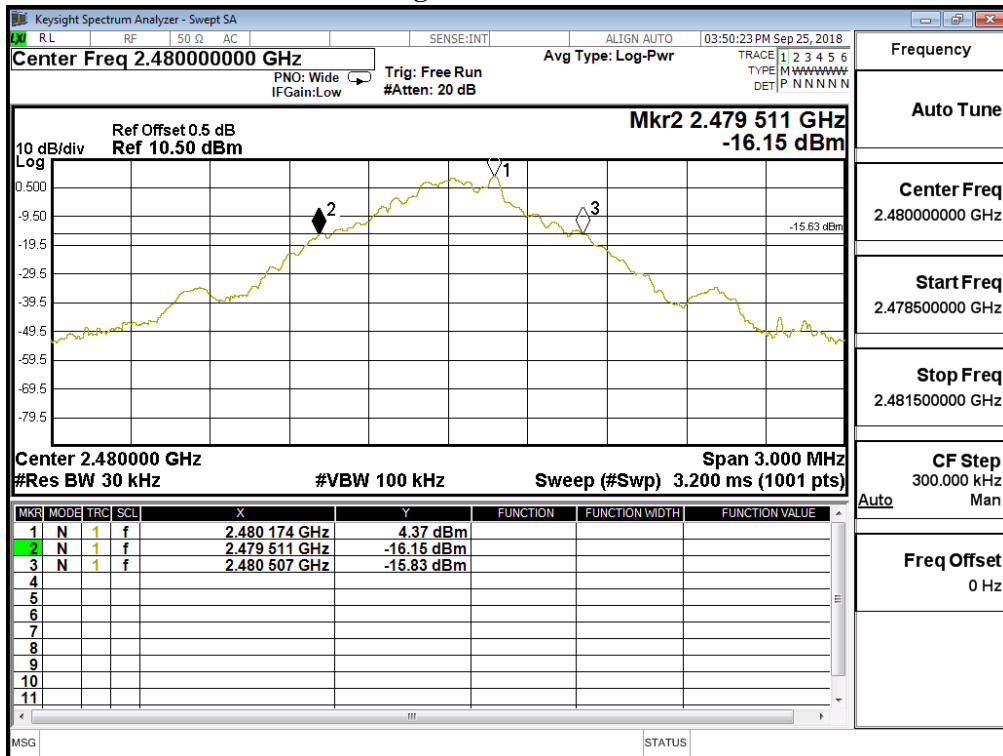


Figure Channel 78:



Product : Portable Printer
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test date : 2018/10/13
 Test Mode : Mode 1: Transmit - 2Mbps($\pi/4$ DQPSK)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1344	--	NA
39	2441	1347	--	NA
78	2480	1341	--	NA

Figure Channel 00:

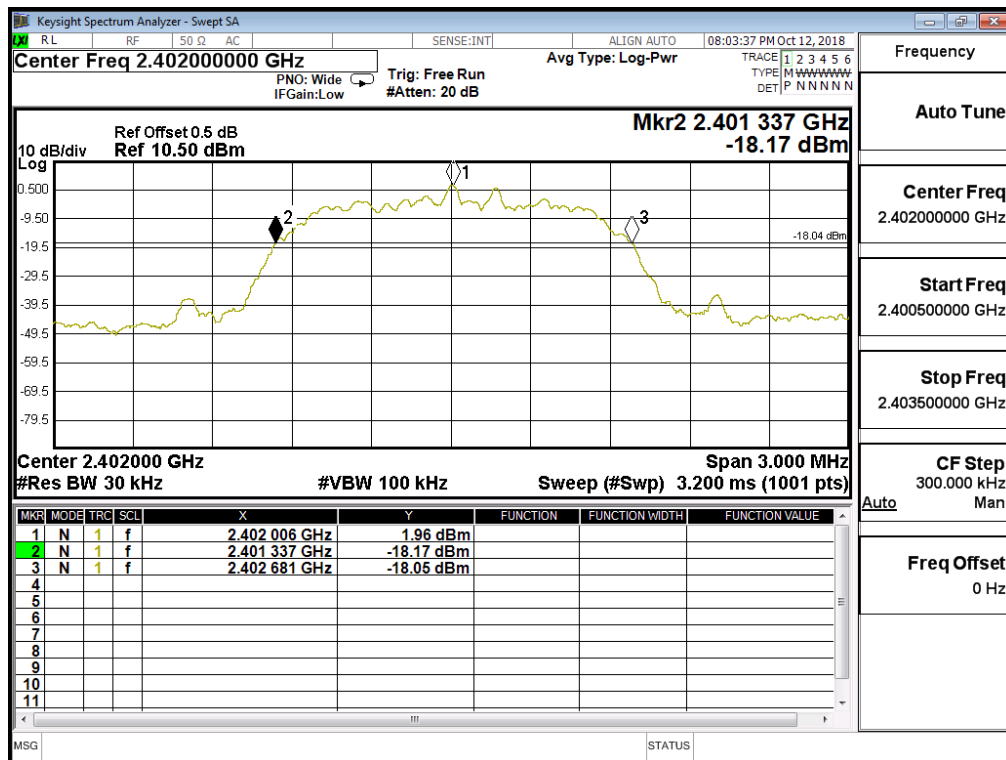


Figure Channel 39:

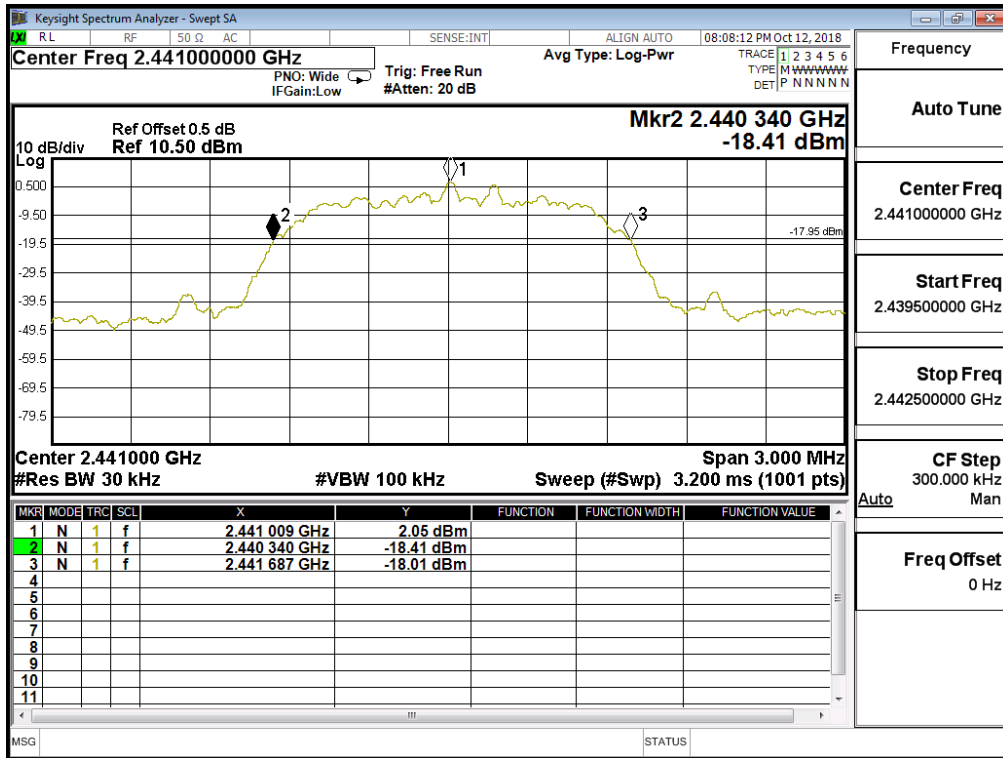
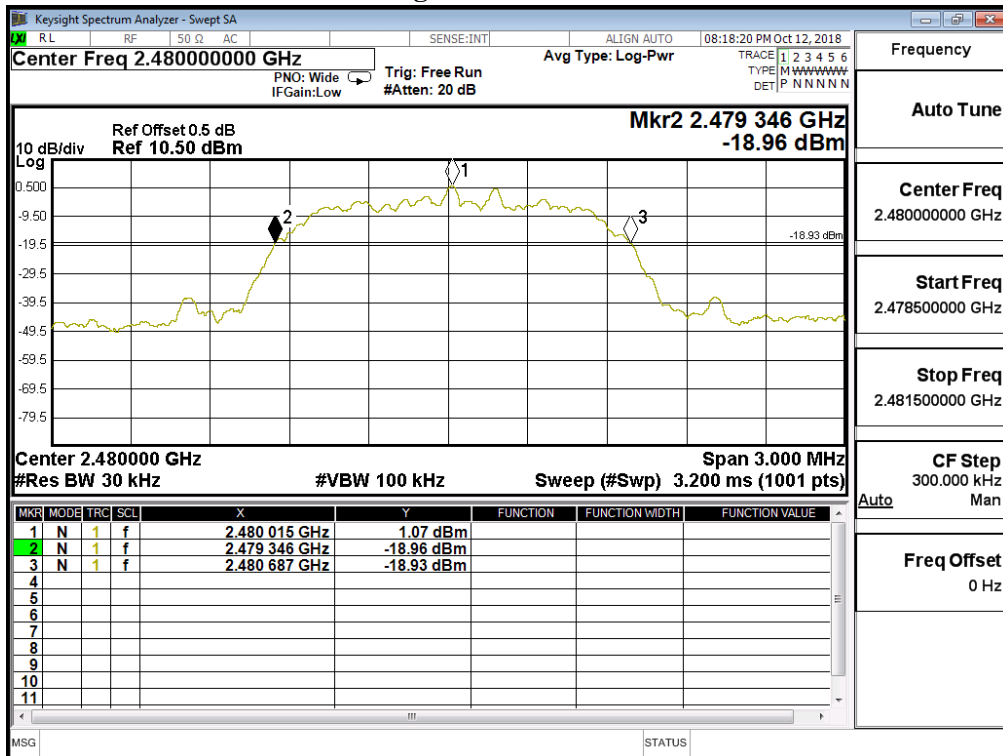


Figure Channel 78:



Product : Portable Printer
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test date : 2018/09/25
 Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1320	--	NA
39	2441	1317	--	NA
78	2480	1320	--	NA

Figure Channel 00:

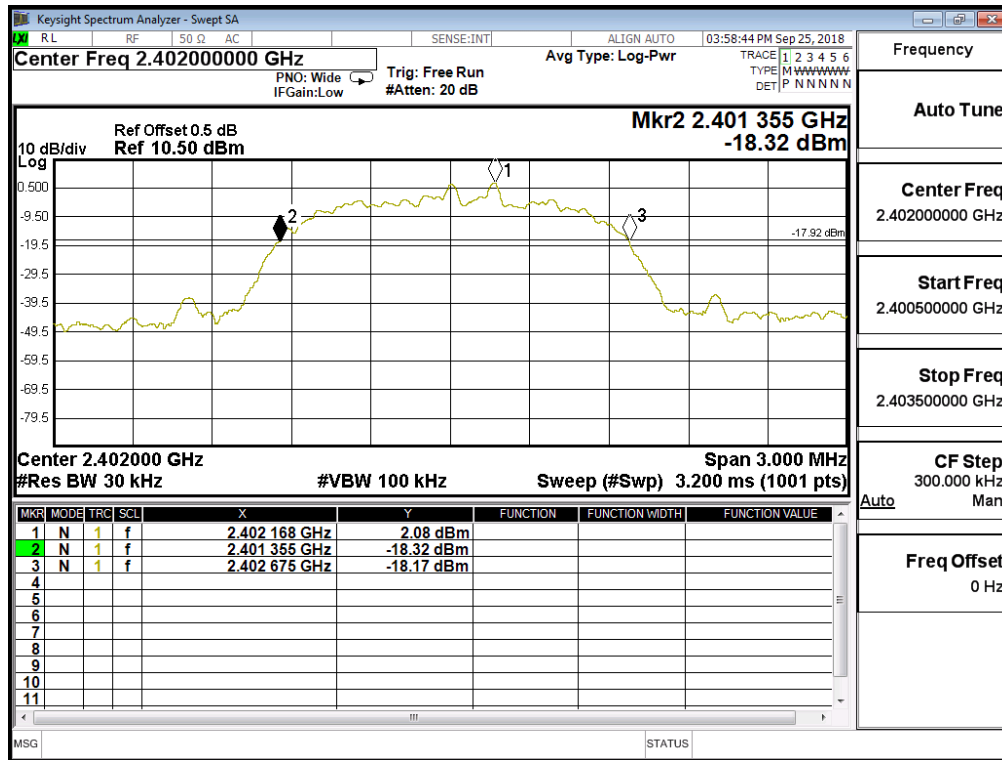


Figure Channel 39:

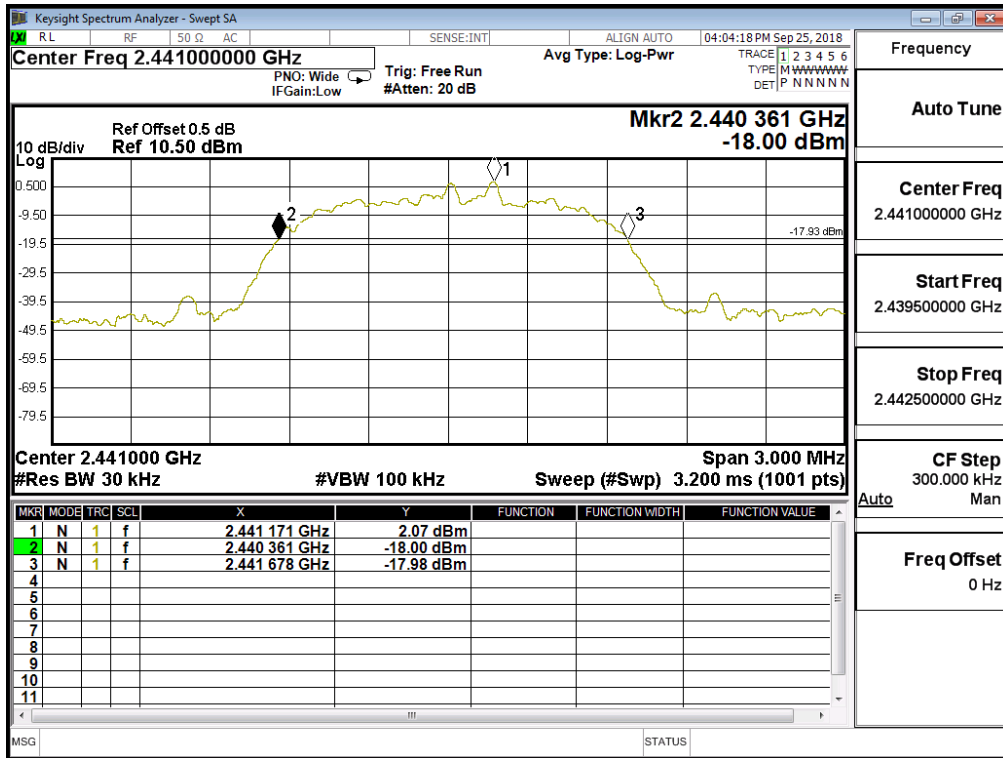
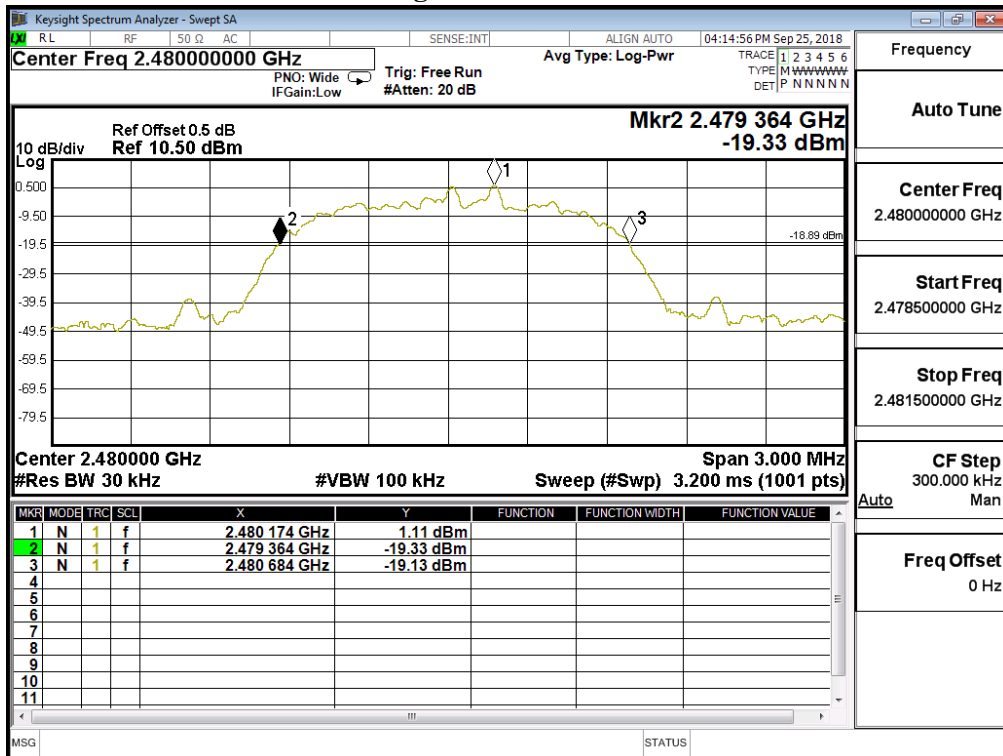


Figure Channel 78:



11. EMI Reduction Method During Compliance Testing

No modification was made during testing.